1984

Railroads in Tuolumne County, California : their role and importance to specific industries and their impact on county economic development, 1897-1917

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RAILROADS IN TUOLUMNE COUNTY, CALIFORNIA: THEIR ROLE AND IMPORTANCE TO SPECIFIC INDUSTRIES AND THEIR IMPACT ON COUNTY ECONOMIC DEVELOPMENT, 1897-1917

by

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A thesis

submitted in partial fulfillment

of the requirements for the degree of

Master of Arts in the Department of History

Graduate School

University of the Pacific

Stockton, California

May 1984

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PREFACE

During most of the nineteenth century and the early years of the twentieth numerous railroads were built throughout America. Some grew into gigantic systems with names we recognize today; Southern Pacific, Atchison, Topeka & Santa Fe, Chesepeake & Ohio. Others faded into oblivion. But all, successful or not, were built to fill transportation needs.

In Tuolumne County, California, located along the Mother Lode and stretching into the high Sierra Nevada, the first railroad reached the county in 1897. By World War I a number of rail lines had been built. Several, having served their purpose, had already been removed by that time. They played varying roles in the different industries of the county; mining and minerals, lumber, hydroelectric power and agriculture, as well as passenger service.

After the war many things changed. Automobiles and trucks successfully competed for some traffic. Mining suffered as labor costs increased while gold held at a price fixed by the government. Dams built by public agencies dwarfed the earlier projects of private industry. And outside capitalists acquired control of companies that had formerly been locally owned and managed. The transportation picture changed dramatically from what it had been before the war.

The purpose of this paper is to study those early years of the twentieth century in Tuolumne County. What were the needs for railroads in different industries and enterprises in the county between 1897 and 1917, and what was their importance to those industries? And finally, what was the impact of railroads on the economic development of Tuolumne County as a whole?

By focusing on an area with a relatively self-contained railroad network it is hoped that influences in the economy will be more apparent. Trends identified here should find application in other areas. It is also hoped that topics for future research will be suggested, and that methods and resources for that research will be suggested.

In any undertaking of this nature the researcher is indebted to many people for the success of his project. This paper has been no exception. First I would like to thank my parents, Kenneth and Denoya Wyatt, for support and encouragement over the years, even when thay did not understand where I was coming from or where I was going. An additional thanks goes to Kenneth and Velna Wyatt for support and a place to hide during the actual writing of this paper.

The California State Railroad Museum staff, past and present, have provided a great deal of support and information, both while I worked there and since I have left. In particular I wish to thank Stephen E. Drew for direction and encouragement while I was on the museum project and for making his personal collection of Sierra Railway material available. Thanks to Ellen Schwartz for help in the library and for French translation. Walter P. Gray III , Dick Denison and Kevin Bunker have provided support and good companionship, may I find others who are as good to work with. I also wish to thank the Unit Shop research and restoration crew and the collections management crew, with a particular rememberence of the late William A. Oden, Restoration Supervisor; we all learned a lot.

Stan Stillwell and Molly Goodwin provided a great deal of support and encouragement during much of the research phase of this project, as did Elizabeth McKee and Judi Lewinski. Thanks also go to

UOP alumni and friends Thomas Caldecott, Gary Ogle, Alan Eade, Gayle Shearman and Michelle Hinton.

Numerous people have opened their personal information files and have provided valued criticism. Among them are Doug Richter, Rick Mugele, Ron Core, Ted Wurm, Al Rose, Mallory Hope Ferrell, Russ Simpson, Robert Dockery, James Boynton, James Holms, Dick Datin, Richard Lucas, Dick Rosenquist, Wendell Hammon, Charles DeLimur, Charles Crocker, Bruce MacGregor and Pat Hathaway. I apologize to any I have missed. Your contributions are none-the-less appreciated.

I wish to thank my professors at the University of the Pacific during both my undergraduate and my graduate years of study. In particular I wish to thank Walter Payne, a big part of the reason I chose UOP for my graduate study. I also wish to thank my committee for their help and suggestions: they have made this a better paper, even if we disagreed on some things.

Finally, my thanks to David Fairley for help with the statistics, for support and encouragement, and for friendship for he knows how many years. Thanks to "Mac" Madden for logistical help in the production of this paper. Special thanks to Tim and Joan Madden for many years of friendship and for major contributions in the production and completion of this paper. It was above and beyond the call.

Introduction

Railroads came late to Tuolumne County. The first was not built until 1897. A short line named the Sierra Railway, it was soon followed by a number of other lines, many of them founded by people associated with the Sierra. The early twentieth century was a time of transition and growth in the county, and the rail lines were deeply involved in that change.

Gold mining was the traditional industry in Tuolumne, dating back to the first discovery in 1848. During the mid 1890s the industry experienced a revival, with major developments in mining properties throughout the county. It was this development that prompted the construction of the Sierra Railway. Mining remained an important part of the Tuolumne County economy until World War I, but high costs and poorer ores forced closures of most of the mines in later years.

Gold was not the only mineral to be exploited in the county. High grade marble deposits were developed around Columbia beginning in 1891, and lime deposits near Sonora went into production shortly after the turn of the century. Smaller developments occurred in granite, copper, asbestos and other materials. Most of these relied on railroad transportation to make them profitable.

The lumber industry, always present in a small way to support the mines, developed into a major industry after the turn of the century. Lumbering probably made the most extensive use of railroads of any endeavor in Tuolumne County. At least five lines were built in part to haul logs to sawmills, with others shipping the finished lumber out. The two major companies, West Side Flume & Lumber Company and Standard Lumber Company, were founded by promoters of the Sierra Railway.

The early 1900s also saw the beginning of a large hydroelectric project on the Stanislaus River, located primarily in Tuolumne County. Small isolated rail lines were constructed to haul rock and earth for dams, and a larger system, also isolated, carried logs to a sawmill and finished lumber to construction camps for a long flume.

Agriculture, begun during the Gold Rush to feed the miners, remained a small, but significant, part of the Tuolumne economy. Livestock, primarily cattle, remained the largest endeavor, but an old industry, apples, took on new life after the turn of the century, in part because of rail transportation. Shipments of both had shown major increases by World War I.

Railroads were the preferred means of travel around the country at the turn of the century, and the Sierra Railway did a good local business in Tuolumne County, although the hoped-for tourist traffic to Yosemite and Calaveras Big Trees never materialized. Through cars to San Francisco and excursions for special events like a baseball game or a dance were the normal fare. But by 1915 competition from automobiles and busses was forcing the Sierra to lower its rates and cut its service, and the stage was set for the declines of the 1920s.

The years following World War I saw some marked changes in the economy of Tuolumne County. Most gold mines had been closed by the War, and few could afford to reopen in the face of high costs and low returns afterwards. As building tastes changed, the marble industry declined, but demand for lime products increased. Lumber continued to expand, with new money invested, and became the dominant industry in the county.

Three publicly-funded dam projects, built to supply water to the Central Valley and San Francisco, and each with a branch rail line to the dam site, dwarfed the earlier hydroelectric project, which also

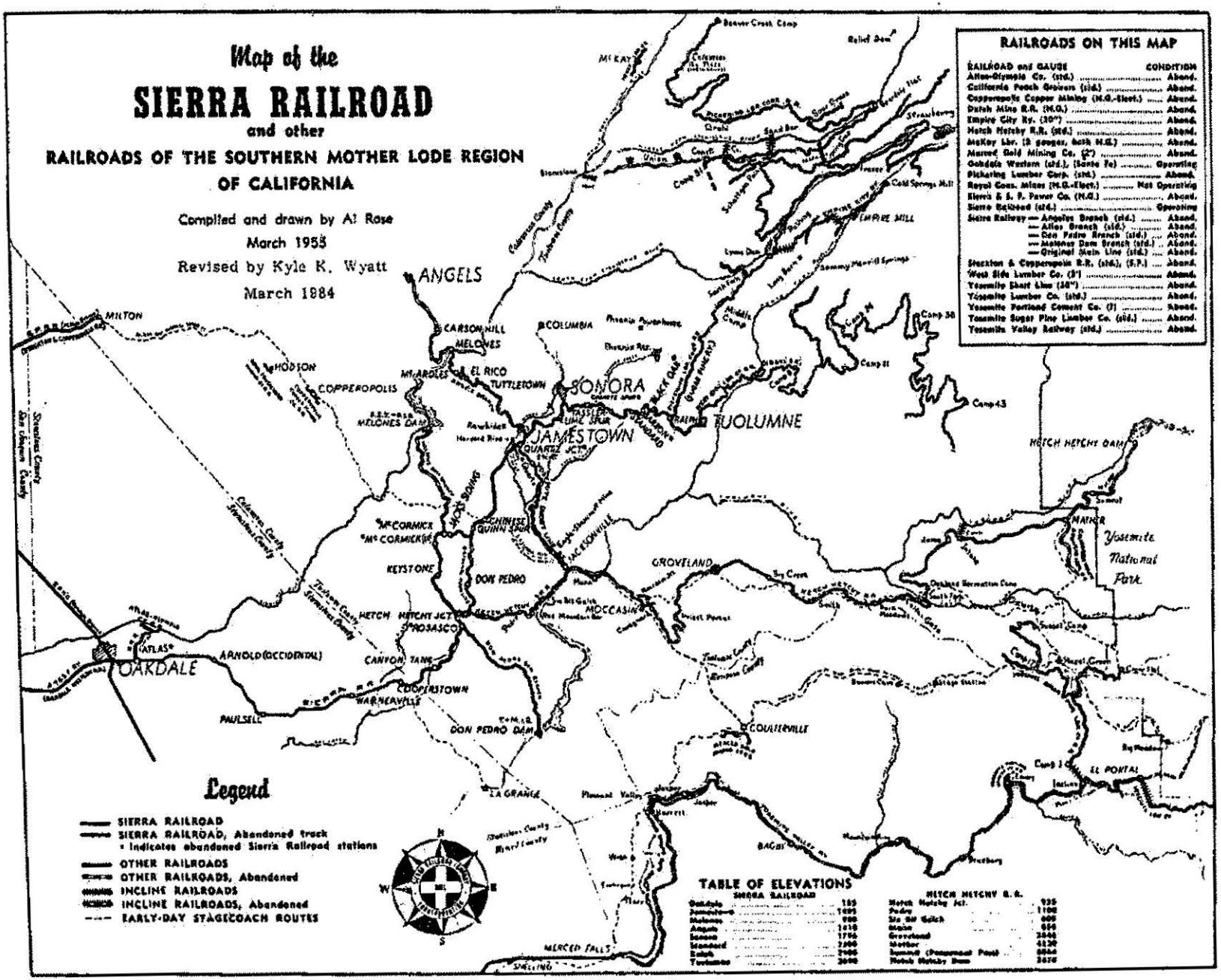
continued to expand. The Hetch Hetchy Railroad, built by the City of San Francisco to serve their project, was independently operated in the 1920s, but when the dam was raised in the 1930s the Sierra operated the line as a branch line.

Cattle ranching remained the most important agricultural activity, but the apple orchards suffered a setback when some of their water supplies were diverted to the large water projects. Finally, passenger travel dropped to almost nothing, and only mail and express contracts kept the passenger trains running until 1938.

The role of railroads in the economic development of Tuolumne County has been central. Indeed, several of the most important industries in the county depended on railroad transportation for their existence. This was particularly true before World War I, before the coming of the truck and before improved highways spread through the county. Comparisons with adjacent counties and the roles of railroads in their development supports this conclusion.

The study of the railroads of Tuolumne county as they related to the different industries in the county has proven most rewarding. Too often in the study of railroad history the railroad becomes the end in itself, and we forget that it was built to provide for a transportation need. By understanding how it filled those needs we can better understand its impact on the people and the places it served. Also, we can better understand the railroad itself.

Figure 1


Map of the
SIERRA RAILROAD
and other
RAILROADS OF THE SOUTHERN MOTHER LODE REGION
OF CALIFORNIA
Compiled and drawn by Al Rose
March 1953
Revised by Kyle K. Wyatt
March 1884
RAILROADS ON THIS MAP
RAILROAD and GAUGE — CONDITION
Allen-Glymale Co. (std.) ..... Abond.
California Peach Growers (std.) ..... Abond.
Copperopolis Copper Mining (N.G.-Elect.) ..... Abond.
Ditch Mine R.R. (N.G.) ..... Abond.
Empire City Ry. (30") ..... Abond.
Hatch Hatchy R.R. (std.) ..... Abond.
McKay Lbr. (2 gauges, both N.G.) ..... Abond.
Merced Gold Mining Co. (2") ..... Abond.
Oakdale Western (std.), (Santa Fe) ..... Operating
Pickering Lumber Corp. (std.) ..... Abond.
Royal Cons. Mines (N.G.-Elect.) ..... Not Operating
Sierra & S. F. Power Co. (N.G.) ..... Abond.
Sierra Railroad (std.) ..... Operating
Sierra Railway — Angels Branch (std.) ..... Abond.
— Atlas Branch (std.) ..... Abond.
— Don Pedro Branch (std.) ..... Abond.
— Melones Dam Branch (std.) ..... Abond.
— Original Main Line (std.) ..... Abond.
Stockton & Copperopolis R.R. (std.), (S.P.) ..... Abond.
West Side Lumber Co. (3') ..... Abond.
Yosemite Short Line (36") ..... Abond.
Yosemite Lumber Co. (std.) ..... Abond.
Yosemite Portland Cement Co. (?) ..... Abond.
Yosemite Sugar Pine Lumber Co. (std.) ..... Abond.
Yosemite Valley Railway (std.) ..... Abond.
ANGELS
MILTON
CARSON HILL
MELONES
COLUMBIA
HODSON
COPPEROPOLIS
MT. ARGUS
EL RICO
TUTTLETOWN
SONORA
BLACK OAK
TUOLUMNE
JAMESTOWN
QUARTZ JCT.
RAILROAD
HETCH HETCHY DAM
MATHER
Yosemite National Park
McCORMICK
McCORMICK
CHINESE
QUINN SIDING
JACKSONVILLE
KEYSTONE
DON PEDRO
GROVELAND
HETCH HETCHY JCT.
ROSASCO
MOCCASIN
ATLAS
OAKDALE
ARNOLD (OCCIDENTAL)
CANYON TANK
COOPERSTOWN
WARNERVILLE
PAULSELL
DON PEDRO DAM
COULTERVILLE
EL PORTAL
LA GRANGE
BAGBY
MERCED FALLS
Legend
SIERRA RAILROAD
SIERRA RAILROAD, Abandoned track
• Indicates abandoned Sierra Railroad stations
OTHER RAILROADS
OTHER RAILROADS, Abandoned
INCLINE RAILROADS
INCLINE RAILROADS, Abandoned
EARLY-DAY STAGECOACH ROUTES
TABLE OF ELEVATIONS
SIERRA RAILROAD
HETCH HETCHY R. R.

Prelude

Before 1897

Natural resources and the physical shape of the land have played a central role in the historical development of Tuolumne County, California. The ninteenth century was dominated by the search for gold, but after the turn of the century other resources moved to the forefront. Minerals such as lime and marble were exploited at this time, but the new industrial leader in the county became lumber.

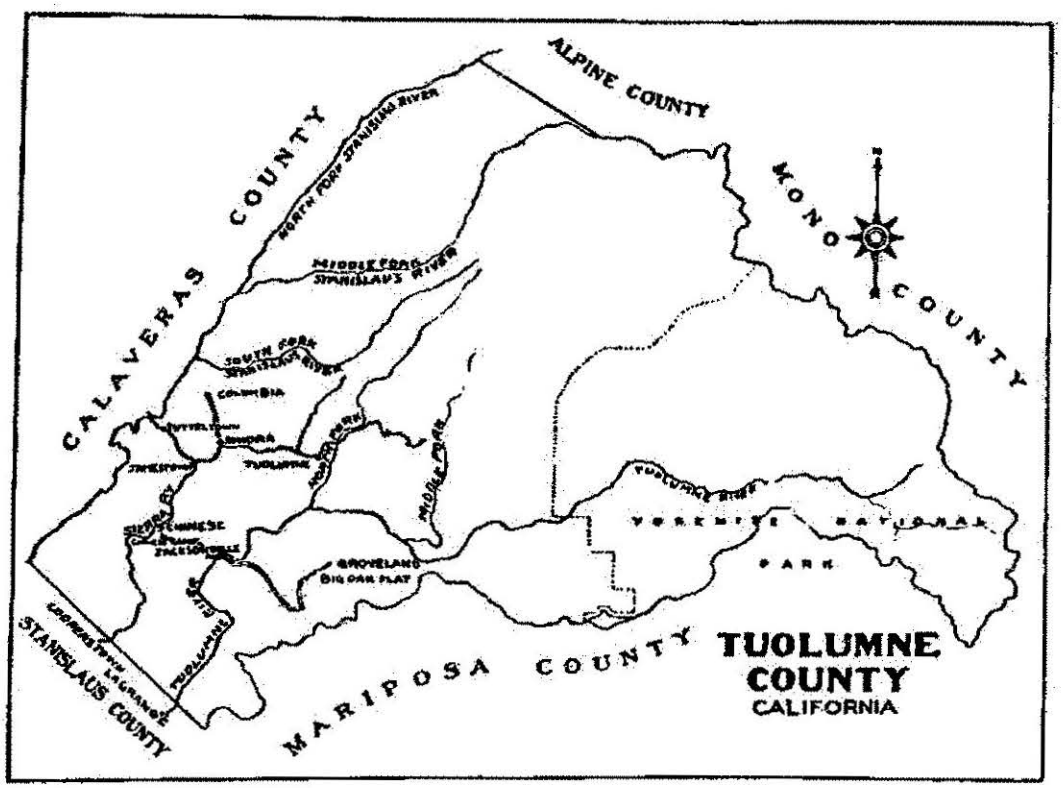
The coming of the white man shattered the way of life of the local Indians, with gold-seekers swarming across the foothill country in search of the yellow metal. As the frenzy subsided into the more normal ways of living and working, a clamoring was heard for improved transportation, especially for railroads. During the second half of the ninteenth century many rail companies were promoted, and several lines were built closer to the county, but it was not until 1897 that a line was built to serve the region. With its coming, the economy of Tuolumne County underwent major changes.

Tuolumne County, California, is located on the western slope of the Sierra Nevada Mountains, stretching from the foothills to the summit peaks. Spread diagonally across the lower hills, the Mother Lode runs from northwest to southeast. Two river systems drain the county; the Stanislaus river on the north, and the Tuolumne River through its center (see Figure 1 and 2).

Geologically the Sierra Nevada is formed by a single massive block tilted up on its eastern edge along a fault zone (see Figure 3), unlike most mountain ranges, which are formed from great wrinkles or folds. This fault zone is the western boundary of the Great Basin,

Figure 2

TUOLUMNE COUNTY



From Tuolumne County, Published by Sunset Homefinders Bureau

stretching east to the Wasatch Range in Utah, and interspersed with a number of lesser ranges of the same type.[1]

The heart of the Sierra range is a batholith composed of granitic type rock. This intruded under the primordial Sierra range and cooled slowly beneath the surface. As uplift continued, the older covering was eroded away, revealing the granite rock. In some places the older rock has not been completely removed, most noticeably on the high peaks and in the lower foothills around the Mother Lode region (see Figure 4).[2]

Early gold mining in Tuolumne County mainly developed the placer deposits found in both modern and ancient streambeds. Mostly utilizing the devestating method of hydraulic mining in their exploitation, these deposits were of little significance to the county economy after that method was legally circumscribed in 1884. Thereafter, hardrock mining of vein or lode deposits produced most of the gold recovered.

In the gold mining areas of the county vein deposits can be divided into two types: (1) those associated with large faults and fault zones, and (2) those associated with short, apparently discontinuous faults, the latter known as pocket mines. The Mother Lode typically is of the first type, although pocket mines are also known. The other major gold producing area in Tuolumne County, known as the Eastern Belt, typically is of the second type. In both of these, gold has generally intruded along the fault lines in association with quartz, and is most

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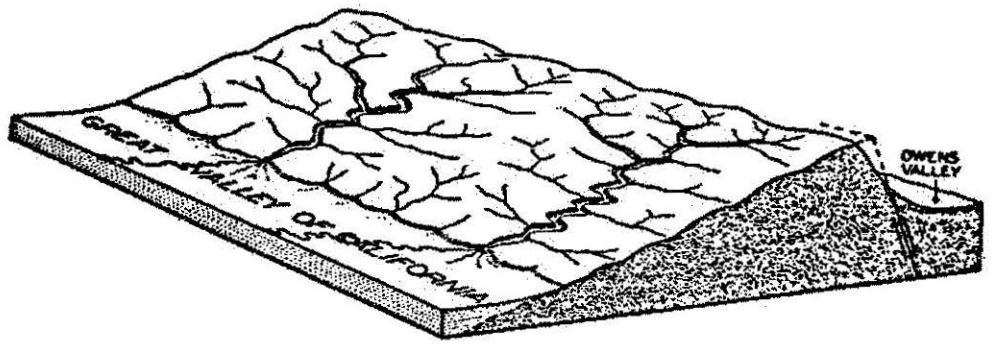
1 Francois E. Matthes, Geologic History of the Yosemite Valley, Professional Paper 160 (Washington, D.C.: U.S. Geological Survey, 1930) p. 24.

2 Matthes, p. 25.

Figure 3

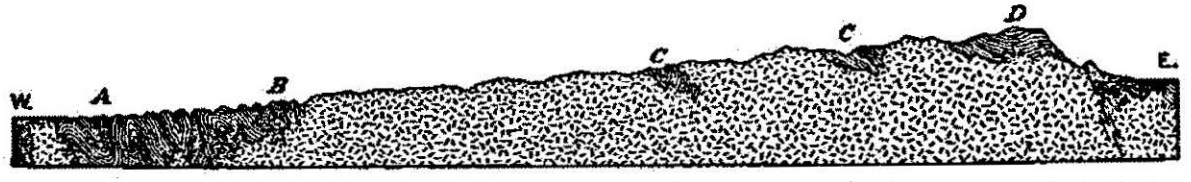
SIERRA NEVADA TILT BLOCK



—Generalized diagram of part of tilted Sierra block. The great fault fractures that separate the Sierra block from the Owens Valley block, on the east, are shown by a single line, and the relative directions in which the two blocks have sheared past each other are indicated by arrows. The height and slant of the Sierra block are much exaggerated. The streams are shown in their characteristic arrangement, the main rivers flowing down the western slope but many of their tributaries in directions approximately at right angles to them. No specific streams are represented. In front is a strip of the Great Valley of California, whose thick layers of sand and silt, derived from the elevated part of the Sierra block, bury the sunken part. At the back is a strip of Owens Valley, veneered with a thinner layer of sediment

Figure 4

SIERRA NEVADA CROSS SECTION



—Idealized cross section of Sierra block, showing the composition of its interior. The folded beds in the foothill belt (*A–B*), at different points on the western slope of the range (*C–C*), and on its crest (*D*) are the remnants of a formerly continuous roof of mostly sedimentary rocks, under which the granitic materials welled up in a molten state. They are the roots, so to speak, of the mountain systems that occupied the place of the present range in times long past

Both from: Matthes, Geologic History of Yosemite

likely related to the rise of the Sierra batholith.[3]

As it rises from the low foothills, Tuolumne County covers several life zones, or biotic provinces (see Figure 5). Each zone is characterized by its own community of plants (see Figures 6 and 7). Of the greatest economic significance is the large Yellow Pine belt of the Transition Life Zone, as well as the Lodgepole-Fir belt of the Canadian Life Zone.[4]

The Indians of Tuolumne County belonged to the Miwok linguistic group. They were a mobile people, traveling into the high country for the summer and back to the foothills for winter, and trading with others from the Central Valley to the East side of the Sierra Nevada Mountains. They were not organized into "tribes" as we know them from other areas of the United States. Instead each independent living unit had its own name and was, for practical purposes, its own "tribe". The "tribes" of California Indians are the creation of whites, who collected all people with similar languages into groups and gave them names, such as Miwok.[5] Today "Miwoks" still live in Tuolumne County, having several rancherias, or small reservations.

Recorded history of the Sierra Nevada Range begins April 2, 1772, when the Spanish missionary Pedro Font recorded sighting "una gran sierra nevada" while exploring the western San Joaquin Valley. The first white man in Tuolumne County may have been Jedediah Smith, who

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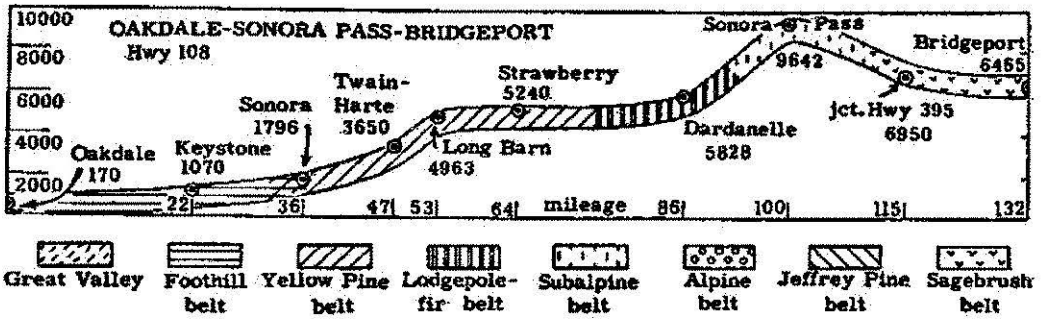
3 John H. Eric and others, Geology of the Mineral Deposits of the Angels Camp and Sonora Quadrangles, Special Report 41 (San Francisco: California Division of Mines, 1955) pp. 41, 44.

4 Tracy I. Storer and Robert L. Usinger, Sierra Nevada Natural History (Berkeley: University of California Press, 1970) pp. 7, 23, 27; Vinson Brown and Robert Livezey, The Sierra Nevada Wildlife Region (Healdsburg, California: Naturegraph Co., 1962) p. 4.

5 Brown Tad, "Miwok" of Tuolumne County, in talk to the Jedediah Smith Society, Oct. 8, 1983.

Figure 5

TUOLUMNE COUNTY PLANT ZONES

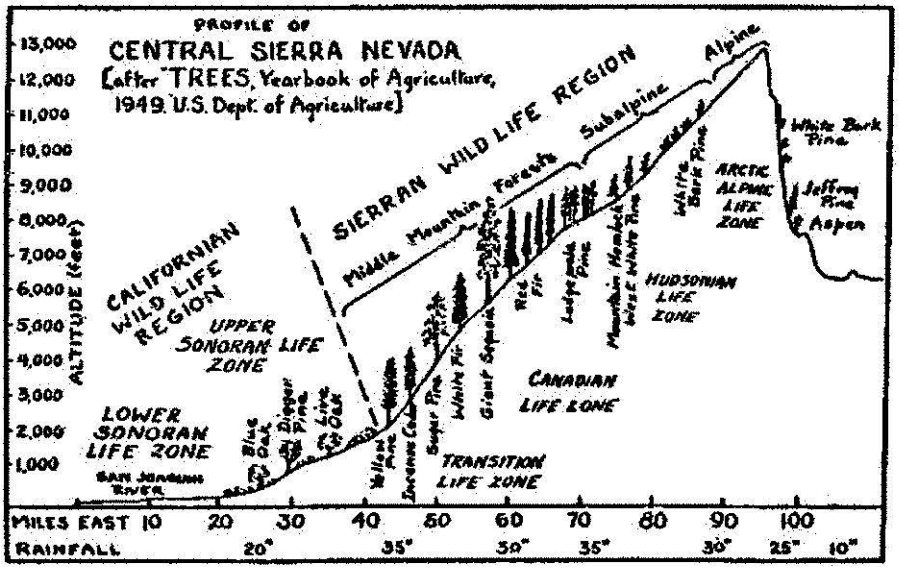


Sections across the Sierra Nevada showing elevations, distances, and plant belts. Elevations are given (in feet) below each place named; mileage is from city named at left side.

From: Storer & Usinger, Sierra Nevada Natural History

Figure 6

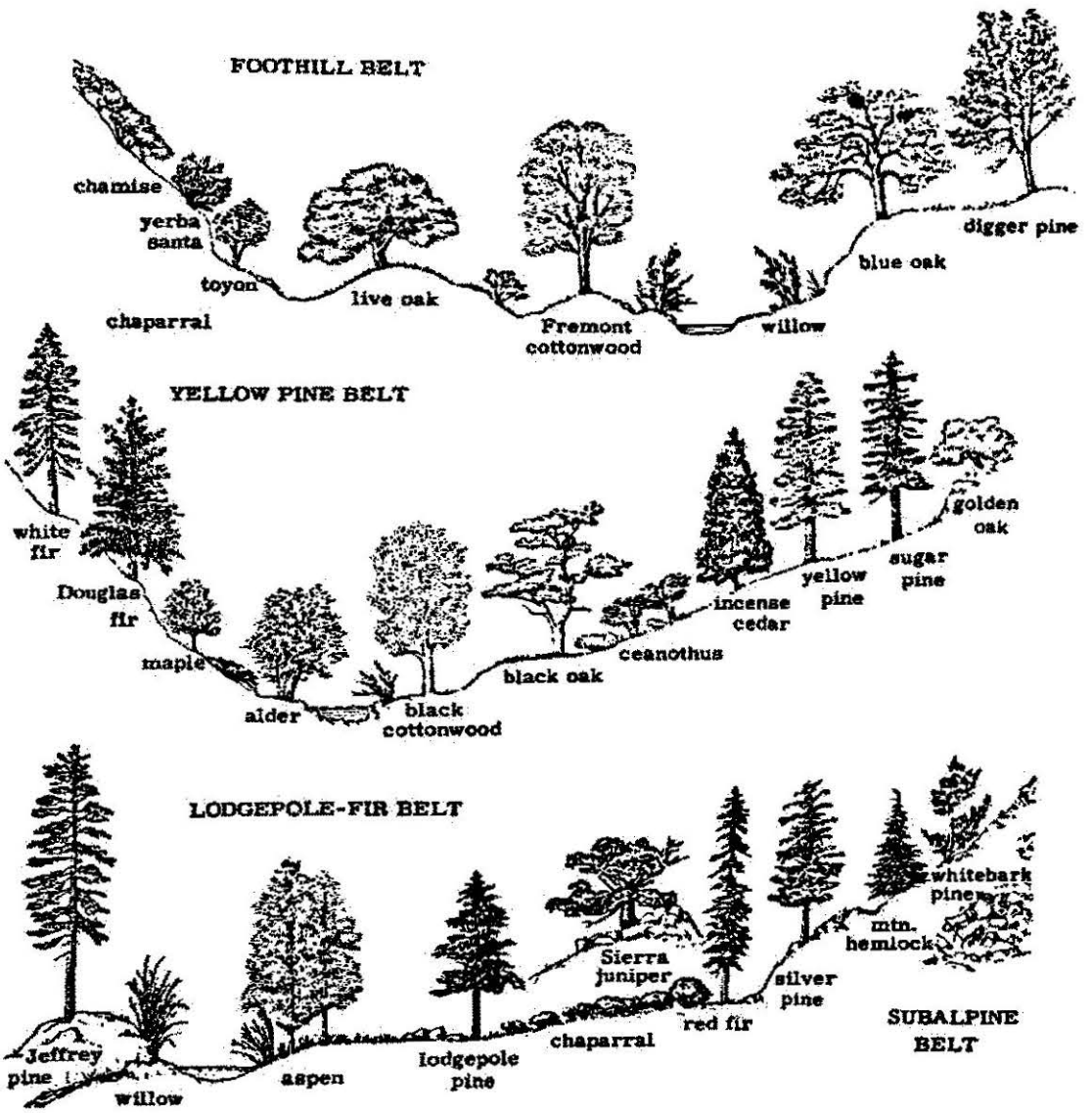
PLANTS of SIERRA NEVADA ZONES



From: Brown, Sierra Nevada Wild Life Region

Figure 7

PLANTS of SPACIFIC SIERRA NEVADA ZONES



From: Storer & Usinger, Sierra Nevada Natural History

crossed the Sierra in October 1827 either at Ebbetts Pass in Calaveras County or Sonora Pass in Tuolumne County. Joseph Walker, descending the west slope after a crossing in 1833, is presumed to have traveled between the Tuolumne and the Merced, and may have entered the county.[6]

With the discovery of gold in Woods Creek near the present town of Jamestown in 1848, the Gold Rush came to Tuolumne County. Chinese Camp, Jacksonville, Poverty Hill, "Jimtown", Sonora and Columbia were just some of the towns that sprang up. Hard rock mining followed in 1850, and hydraulic mining soon after, and gold was the biggest industry in the mountains.

With mining came the need for transportation. The first common carrier railroad in California, the Sacramento Valley Rail Road, was incorporated August 16, 1852, and built a line from the river at Sacramento to Folsom. The Stockton & Copperopolis Railroad, incorporated October 11, 1865, was the first line built east from Stockton in the general direction of Tuolumne County. Interestingly enough, it was built to serve copper mines, rather than gold mines. During the Civil War, copper prices were high, and the line was launched with great expectations toward the mines at Copperopolis, in Calaveras County. After the War, copper prices dropped, and the railroad never made it past Milton.[7]

Associated with the Stockton & Copperopolis, the Stockton & Visalia Railroad was incorporated December 16, 1869 to build south from Peters on the Stockton & Copperopolis. It reached Oakdale in 1871, and

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6 Storer, p. 2; Walton Bean, California: An Interpretive History (New York: McGraw-Hill, 1978), p.64.

7 Guy L. Dunscomb, A Century of Southern Pacific Steam Locomotives (Modesto, California: Dunscomb, 1963) p. 418.

there it stopped. This became the closest rail connection to Tuolumne County for the next 26 years. Both railroads were leased to the Southern Pacific in 1874, and later consolidated into that company.[8]

Throughout the 1870s and '80s rail lines were projected into Tuolumne County. Before construction of the train ferry in 1879 to cross the Benicia-Martinez Straits, Southern Pacific considered building a line over Sonora Pass to connect with its line east, estimating it would save about 300 miles off the Ogden-to-San Francisco run, at that time traveling south from Sacramento to Stockton before turning west to the Bay Area. In 1876, in answer to a committee from Tuolumne County, President Stanford of the Southern Pacific stated that if the people of Tuolumne would build a line from any point on the railroad, taking bonds in the new company as payment, that Southern Pacific would equip and operate the line and agree to a fair distribution of the earnings. Nothing ever came of either of these plans.[9]

Southern Pacific was not the only company proposing new lines. Several narrow gauge lines were proposed, and several were even built some distance. In 1872 the Stockton & Tuolumne Railroad ordered two locomotives, but the line was not built and the builder eventually sold them to other companies. In the 1880s the Nevada & California Railroad ran surveys across Sonora Pass for a planned line to Utah and a connection with the narrow gauge Denver & Rio Grande. It never got past Bryant, just east of Richmond in the Bay Area. During the same period the San Joaquin & Sierra Nevada planned a line to Calaveras Big Trees, but only reached Valley Springs before it was absorbed by Southern

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8 Dunscomb, p. 418.

9 Sonora [California] Banner, Sept. 13, 1916; Railroad Gazette [New York] July 14, 1876.

Pacific.[10]

The Southern Pacific still had building plans. In 1881 they announced the Modesto, Tuolumne & Mono Railroad, projected from Modesto through Tuolumne County to Bodie in Mono County. Nothing more was heard. Finally in 1887 some construction was started, but in the wrong direction. Southern Pacific extended their line from Oakdale back to the mainline at Merced, reaching there in 1891.[11]

After construction was started on the Sierra Railway in 1897, a number of other lines were projected, some to compete and some to connect. Few were more than talk. One rail line that was built had a direct and positive impact on the Sierra. The San Francisco & San Joaquin Valley Railroad was built south from Stockton in competition with the Southern Pacific. It reached Modesto in 1896, and Bakersfield in 1898. That year it was sold to the Atchison, Topeka & Santa Fe.[12]The Oakdale Western, incorporated June 24, 1904 and completed in 1905, connected the Santa Fe with Oakdale and the Sierra Railway. Leased to the Santa Fe after completion, it provided an alternate to Southern Pacific for the Sierra.[13] Other lines that connected with the Sierra will be discussed in chapters to follow.

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10 Danforth & Cooke locomotive construction records, ALCO Historic Photos, Schenectady, New York; Mallory Hope Ferrell, West Side: Narrow Gauge in the Sierra (Edmonds, Washington: Pacific Fast Mail, 1979) p. 39; Dunscomb, p. 392.

11 Railroad Gazette, Nov. 11, 1881; Dunscomb, p. 419.

12 Donald Duke and Stan Kistler, Santa Fe...Steel Rails Through California (San Marino, California: Golden West Books, 1963) pp. 50-1.

13 Incorporation papers of corporations in California, Californie State Archives, Sacramento, hereafter cited as Incorporation Papers; California Railroad Commission Annual Report, year ending June 30, 1911, (Sacramento: California Railroad Commission).

The Sierra Railway

Two sets of brothers-in-law were responsible for the creation of the Sierra Railway: Thomas S. Bullock and Sydney D. Freshman, originally from New York, and William H. Crocker and Prince Andre Poniatowski, based in San Francisco. Very little is known about Bullock before he came to California, and even less is known about Freshman. Both Crocker and Poniatowski, on the other hand, are well documented, Crocker by a biography and Poniatowski by his autobiography.

T.S. Bullock was born January 1, 1853, an Indiana farm boy from the town of Shelbyville. He headed West to California about 1870, stopping first in San Francisco and then in Los Angeles. After a brief stay, he joined the rush to the Tiger Lode at Prescott, Arizona in 1871, where he remained several years working in the mines, tending bar, driving teams and saving money.[14]

With his savings Bullock headed for New York where he earned a small fortune building street railways. In 1885 he returned to Prescott and helped organize and construct the Prescott & Arizona Central Railroad, becoming its President and General Manager.[15] Based in New York, he remained active in other promotions and projects, including serving as Vice-President of the Monterey & Mexican Gulf Railroad. Chartered on September 5, 1888, this company constructed a line from Monterey (later Monterrey) to Tampico in Mexico.[16] Also in 1888 he married Emma S. Peck.

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14 Robert L. Spude, "A Shoestring Railroad; The Prescott & Arizona Central", Arizona and the West, Vol. 17, No. 2 (Autumn 1975), p. 228.

15 Spude, p. 228.

16 Poor's Manual of Railroads (annual), 1901 (New York: H.V. & H.W. Poor), hereafter cited as Poor's Railroads; Official Guide of North American Railroads (monthly), Jan. 1891 (New York: Official Guide Publishing Co.), hereafter cited as Official Guide.

Bullock's star seemed on the rise, but in the early 1890s things started to go wrong. In September 1892 the Monterey & Mexican Gulf slipped into bankruptcy and was placed in the care of a receiver. On December 1, 1895 it was turned over to the Belgian Society of Railways in Mexico, Ltd., resulting in a loss for Bullock. Then in 1893 the Santa Fe Railway sponsored a competing rail line to Prescott, and by July the Prescott & Arizona Central was in the hands of a receiver. Sold in August to its New York directors, including Bullock, it ceased to operate by the end of the year.[17] Left with railroad equipment and no place to run, Bullock went looking for a new place to build, and ended up in the California Mother Lode.

Few references have been found to S.D. Freshman's activities before coming to California. It appears he was associated with Bullock in New York, as in October 1893 we find him President of the Park Place Commercial Company, owners of the Prescott & Arizona Central equipment after the sale to the New York directors. As in later days on the Sierra, Freshman undoubtedly worked closely with Bullock as his assistant during these years.[18]

William H. Crocker was born January 13, 1861, the third son and fourth child of Charles Crocker of Central Pacific fame. After graduation from college, his father and R.C. Woolworth, an experienced banker, formed Crocker, Woolworth & Co., Bankers, in 1883, incorporated as the Crocker-Woolworth Bank in 1886, with Woolworth as President and W.H. as Cashier. Charles Crocker put up most of the money with the agreement that Woolworth was to teach all he knew of banking to his son.

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17 Poor's Railroads, 1895, 1901.

18 Sierra Railway material, private collection of Stephen E. Drew, Sacramento.

A quick learner and interested student, by 1893 W.H. Crocker was President of the bank. By this time he had also married Ethel Sperry, of the Stockton grain milling family.[19]

Through his position with the bank, and through family connections, Crocker became involved in investments and promotions all around California. Of these, his enterprises in Tuolumne County were relatively minor, rating hardly more than a paragraph or so in his biography. For Tuolumne, however, his involvement was major, for he provided or helped locate the financing for several of the important enterprises in the county.[20]

Prince Andre Poniatowski was the great-grandnephew of the last King of Poland. Born January 24, 1864 in Paris, he arrived in the United States in 1892 on an expedition to learn of conditions for some French bankers. While in San Francisco he was introduced to W.H. Crocker, and through him met Crocker's sister-in-law, Elizabeth Sperry, whom he married in October 1894 in Paris.[21]

In 1896 Poniatowski returned to California, intending to acquire and modernize old mines in the Mother Lode, after learning about modern mining methods in the Transvaal in South Africa. California was 30 years behind in mining technology, and the introduction of the new methods was bringing about a mining revival in the region. In Europe, Poniatowski had formed the California Exploration Company, a syndicate representing interested French and British capital, and set up

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19 David Warren Ryder, A Great Citizen: A Biography of William H. Crocker (San Francisco: Historical Publications, 1962) pp. 47-49; Charles M. Coleman, P.G.& E. of California, 1852-1952 (New York: McGraw-Hill Company, 1952) p. 164.

20 Ryder, pp. 50-80.

21 Prince Andre Poniatowski, D'un Siecle a L'Autre (Paris: Presses de la Cite, 1948) pp. 345-360; Coleman, p. 163.

headquarters in San Andreas in Calaveras County. Soon signs with the initials C.E.C. were appearing on many mines around the central Mother Lode. Local wags dubbed this "Catching English Capital".[22]

Late in 1896 Bullock approached Poniatowski with the idea of building a railroad to serve the mines of the C.E.C. The result of the meeting was an agreement, dated November 4, 1896, to form a company named the "Sierra Pacific Railway Company", with an eye toward reaching timber lands as well as mines. Poniatowski was to provide the financing, and Bullock was to construct and equip the line. Some Crocker family members were concerned about the risk of the promotion, but Poniatowski determined to go ahead with it, and W.H. agreed to provide support. Following surveys around the Mother Lode on horseback, Bullock and Poniatowski decided to run the new railroad from Oakdale, in Stanislaus County on the Southern Pacific, through Tuolumne County to Angels Camp in Calaveras County.[23]

By early January 1897 the Oakdale Graphic reported surveyors working on a line to Sonora, and on February 1 the new company, now named the Sierra Railway Company of California, was incorporated. West Coast Construction Company, owned by Bullock, arrived at Oakdale on March 2 under the supervision of W.C. Potts from the Prescott & Arizona Central, and the work began. Cooperstown was reached June 19 and the line was officially opened for business. Work progressed rapidly, with Don Pedro reached on August 5, 1897, Chinese Station (two miles north of Chinese Camp and referred to simply as Chinese) on October 14, and

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22 Poniatowski, pp. 262-269.

23 Poniatowski, pp. 370-2; Legal and Financial Material, Sierra Railway collection, Bancroft Library, Berkeley, hereafter cited as Bancroft; Incorporation Papers.

finally Jamestown on November 10. Here the company's shops were built and construction halted for a time.[24]

By 1898 it was obvious that the Sierra would have to be extended. Freight hauling from the mines to Jamestown for transhipment to Oakdale cost about as much, and took about as much time, as shipping directly to Oakdale. In August construction was started on a line to Sonora. Extension of the (planned) main line to Angels Camp was delayed, as no way had been found across the Stanislaus canyon, and the consensus was that it was impossible. Bullock and Poniatowski had also leased the Columbia Marble Works in anticipation of a possible contract for stone to be used in a new Post Office in San Francisco, and plans were to construct a line from Sonora to Columbia if they won the contract.[25]

Construction slowed down after the Post Office decided to build in granite instead of marble, but work on the extension continued. Meanwhile, the decision was made to continue the "Coulterville line" on from Sonora to Summersville (later Tuolumne). A new surveyor, William H. Newell, was hard at work on that line as well as the dorment Angels line and a relocation of the main line between Rosasco and Chinese.[26]

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24 Dorothy Newell Deane, Sierra Railway (Berkeley: Howell-North, 1960) pp. 14-33, citing Oakdale [California] Graphic, hereafter cited as Deane; Incorporation Papers; Sierra Railway Annual Report to the California Railroad Commission, June 30, 1898, Public Utilities Collection, California State Archives, hereafter cited as Sierra CRRC Report, CSA; Bullock correspondence, Freshman correspondence, Timetables, Bancroft.

25 Deane, pp. 36-8; Sonora Banner, Aug. 19, Sept. 2, 1898; Board of Directors minutes, Bancroft; Sierra Railway collection, California State Railroad Museum, Sacramento.

26 Deane, pp. 42-8; California Railroad Commission Valuation Working Papers, 1912-1913, Public Utilities Collection, California State Archives, Sacramento; hereafter cited as CRRC Valuation Papers; Board of Directors minutes, Bancroft.

W.H. Newell came to the Sierra in October 1898. Born August 3, 1862 in Cream Ridge, New Jersey, he received a degree in engineering at Ann Arbor, Michigan, and then went to work for the Mexican Central Railroad, a connection of the Monterey & Mexican Gulf, where he located several difficult lines. Here he came to the attention of Bullock, who was more than happy to hire him for the Sierra after his work in Mexico was done.[27]

The line to Sonora was opened February 25, 1899, and construction continued toward Tuolumne. Marble from the Columbia Marble Quarry was used to face the first story of the Sonora depot. Work also started again on the Angels line in August, as Newell had located a route. Construction of a bridge across the Stanislaus on the proposed line was also begun. This led to some complications when owners of some of the mining claims crossed by the route asked more than Bullock thought they should for a right-of-way.

Bullock threatened to stop the rail line at Tuttletown, reached August 17, 1900, if agreement could not be reached. He even went so far as to offer the Stanislaus River bridge to the counties of Calaveras and Tuolumne for a wagon road, and incorporated the Tuttletown & Angels Aerial Tramway Company to span the canyon and reach Angels Camp. Eventually agreement was reached with the claim owners and construction was resumed.[28]

On the mainline, the revised route between Rosasco and Chinese was placed in service, and on February 1, 1900 the line to Tuolumne was

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27 Union Democrat (Sonora, California) April 28, 1970, hereafter Union Democrat; Timebook, Bancroft.

28 Board of Directors minutes, Bancroft; Sonora Banner, Oct. 27, Nov. 17, 1899, Jan. 19, Feb. 23, March 9, Aug. 17, Sept. 7, 14, 1900, Aug. 2, 1901; Incorporation Papers.

opened. The West Side Flume & Lumber Company (later West Side Lumber Company) had been acquired by Bullock, Poniatowski and Crocker, and was soon to complete a large new sawmill at Tuolumne.[29]

The Sierra continued construction on the Angels line and improvements on the main line. Coal was replaced with oil on the locomotives, and early application of this fuel. Carson Hill was reached August 15, 1902, and Angels Camp on Sept. 10.[30] This completed the main and branch lines owned by the Sierra.[31] All further extensions were through leases or under contract. The Sugar Pine Railway, incorporated in 1903 as a subsidiary of the Standard Lumber Company and built to Middle Camp, was operated by the Sierra under lease from 1904 to 1908, and the Yosemite Short Line Railway, formed in 1905 but never completed, was to have been operated the same way.[32]

For the next several years following the completion of the line to Angels Camp, rumors spread that either the Southern Pacific or the Santa Fe was to buy the Sierra, but this never happened. Prince Poniatowski stated that the two big roads had an agreement that neither would buy the line. After the termination of the lease of the Sugar Pine Railway, the Sierra laid aside expansion plans and concentrated on running the railroad they had.[33]

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29 Sierra CRRC Report, 1900; Incorporation Papers.

30 Sonora Banner, Feb. 16, May 11, 1900, Aug. 15, Sept. 10, 1902.

31 By this time the Angels line was the branch and the Tuolumne line was the main.

32 For further information on the Sugar Pine Railway, see the Lumbering chapter. The Yosemite Short Line Railway is covered in both the Lumbering and the Passenger Travel and Tourism chapters. Sierra branches to Don Pedro and Melones Dams in the 1920s and the lease of the Hetch Hetchy railroad in the 1930s, while beyond the scope of this paper, are briefly covered in the Water and Hydroelectricity and Postlude chapters.

33 Sonora Banner, May 15, Sept. 16, 30, 1904, Oct. 27, 1905, May 25, 1906; Poniatowski, pp. 466, 476.

Prince Poniatowski's concerns took him back to France in 1903, and he resigned as a director and President of the Sierra effective October 19. In 1906 he again became a member of the Board of Directors, and remained so through at least 1914, but he never again played an active part in the railway he had helped to create. He lived a long life, and died in France in 1957, the last of the founders of the line. Freshman died in San Francisco on March 17, 1915, after having been in failing health for some time. Bullock became President of the Sierra when Poniatowski left, but after contracting a progressive illness in 1914 that gradually reduced his energy, he resigned the Presidency in January 1916, although remaining as General Manager until October 1917. He died in Jamestown on May 19, 1919.[34]

As the teens and twenties progressed, W.H. Crocker began to play a more active role in the affairs of the Sierra. He was instrumental in reorganizing the line in 1937 after its bankruptcy in 1932. He finally died September 25, 1937. Newell left the Sierra in 1907 for a railroad promotion in Stockton, then traveled to other areas, including Chile, before returning to the Sierra in 1914. He retired in 1932 and died in Jamestown in 1948.[35]

The construction of the Sierra Railway opened the way for development and exploitation of many different resources in Tuolumne County. The influx of money and energy that the line's promoters brought with them helped realize some of this potential. The

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34 Director's meeting minutes, Miscellaneous Papers, Bancroft; Sierra Railway Annual Report to the Interstate Commerce Commission, 1898-1914, National Archives, Washington, D.C.; Sonora Banner, Mar. 1915.

35 Legal and Financial Materials, Miscellaneous Papers, Bancroft; Coleman, pp. 311; Tuolumne [California] Independent, March 9, 1907; Sonora Banner, May 8, 1914; Union Democrat, April 28, 1970.

availability of effecent transportation encouraged others to invest their money in new projects. The impact on different industries varried, as the role of transportation varried, but the final result changed the course of development in the county and set it apart from similar areas that lacked a railroad. For better or for worse, Tuolumne County was never the same after 1897.

Mining and Minerals

The mineral wealth of Tuolumne County has been exploited since the days of the Gold Rush. Not surprisingly, most attention has been focused on gold, but in the twentieth century several other mineral deposits have proven economically important. Marble and limestone deposits were developed shortly before and after the turn of the century and became major industries. Copper, chromite, granite and magnesite have also been exploited. All of these benefited from rail transportation.

Gold mining was Tuolumne County's oldest industry, dating back to 1848. The first gold in the county was found in Woods Creek, near the present town of Jamestown. The first mine, named the Harvard, was discovered nearby in 1850. From these beginnings the county's gold mining industry spread through the county, dominating its economy for the next 60 years and following the general ups and downs of the industry throughout the State (see Appendix C).

Until the 1890s, Tuolumne was known not for its deep mines, but for its rich lode or vein pocket mines and its gold-bearing gravels or placers.[1] Before it was outlawed in 1884, hydraulic mining was common. Many parts of the county still carry traces of that work, most notably around Columbia. The pocket mines of Jackass Hill became known not only for their high gold production, but from the writings of Mark Twain and Bret Harte.

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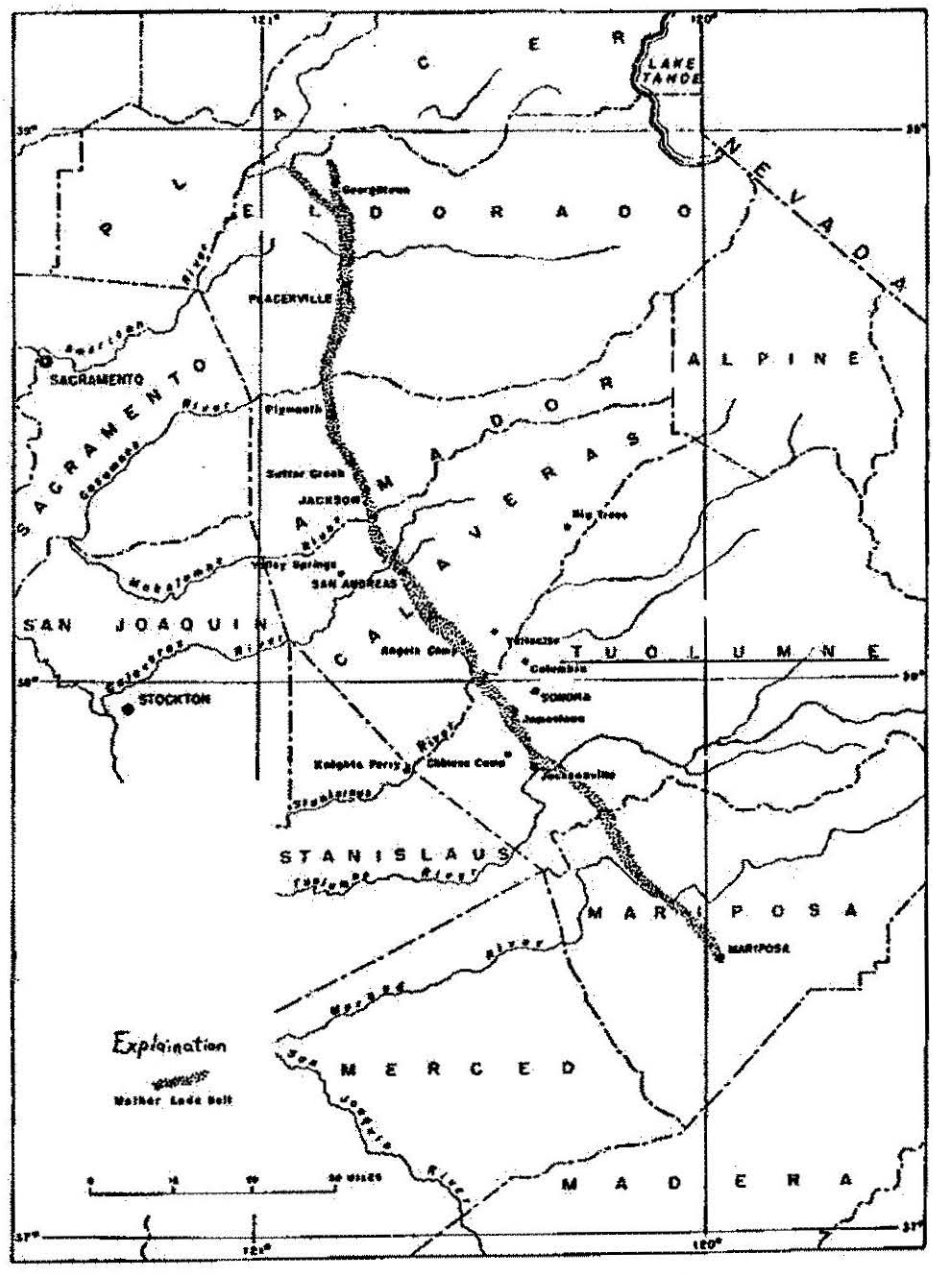
1 Report XIII of the State Mineralogist (periodic), 1896 (Sacramento: State of California) p. 472, reports hereafter cited collectively as State Mineralogist Report.

Figure 8

MOTHER LODE BELT



Based on: Eric, Geology and Mineral Deposits of the Angels Camp and Sonora Quadrangles

The late 1880s and early 1890s were a time of change in the California gold industry. This period saw the consolidation of claims and the introduction of new technology.[2] These developments arrived late in Tuolumne, and county gold production bottomed out in 1893. Four years later, following the revival of deep-rock mining, Tuolumne reached its most productive year (see Appendix D). This renewed mining attracted outside capitalists, and resulted in the construction of the Sierra Railway, as we have seen.

The railroad hauled ore concentrates for most of the big mines of Tuolumne County (see Figures 9, 10 and 11), and built spurs directly to several of them. These included the Harvard and the Dutch-App Group, plus mines close to the rail line in Tuolumne and Calaveras counties such as the Draper, Patterson, Melones and Carson Hill.[3] Other mines hauled their ore to nearby sidings, or built aerial tramways to reach the tracks. Prior to the construction of the railroad, most mines had processed their own ore. With the coming of the Sierra, mining companies located near the tracks, both at Angels Camp and in the northern part of Tuolumne, found the increased costs of shipping ore to the Selby smelter near Benicia for processing were generally more than

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2 William B. Clark, Gold Districts of California, Bulletin 193 (San Francisco: California Division of Mines and Geology, 1970), p. 7

3 Bullock stated in June 1916 that the spurs to the Harvard and Dutch-App were installed to keep those companies from building cyanide plants for processing their own ore (see Hamblin Correspondence, Bancroft.

Figure 9

IMPORTANT GOLD MINES of TUOLUMNE COUNTY

Based on: Report XXIV of the State Minerologist, 1928 and Clark, Gold Districts of California

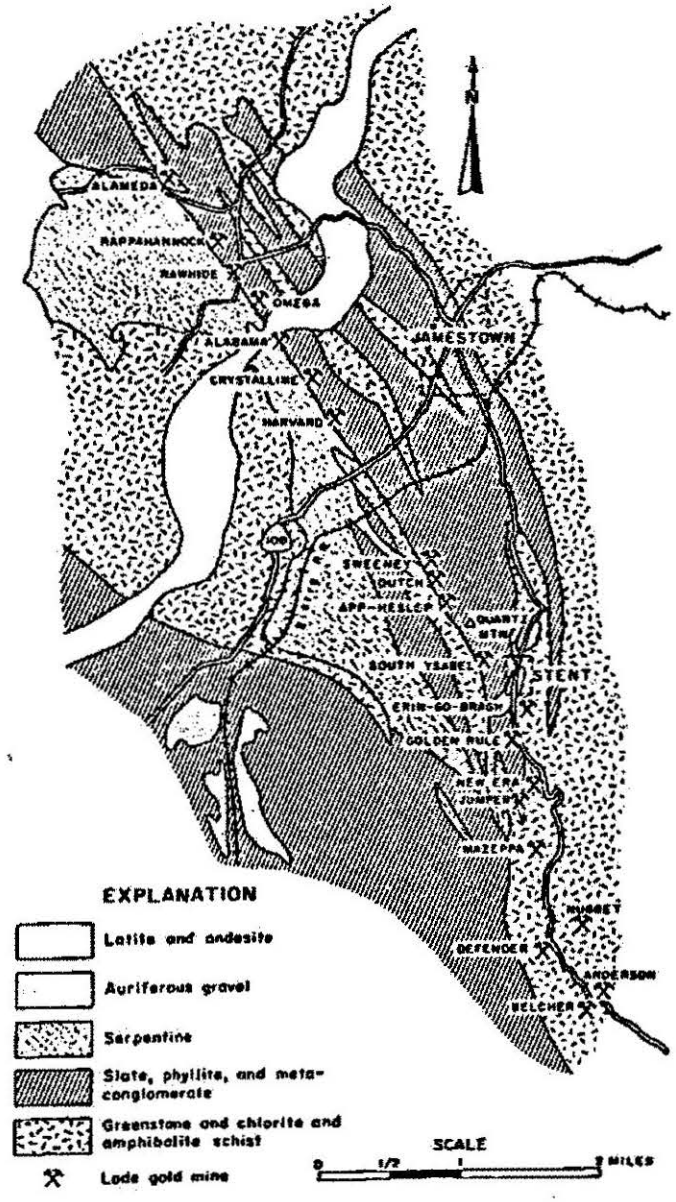
Mine	Gold Recovered	District
Mother Lode		
App-Heslep	$6,500,000	Jamestown
Dutch-Sweeney	3,000,000	"
Eagle-Shawmut	5,000,000	Jacksonville
Harvard	2,500-3,000,000	Jamestown
Jumper	5,000,000	"
Rawhide	6,000,000	"
Santa Ysabel	1,500,000	"
East Belt		
Black Oak	$3,500,000	Soulsbyville
Confidence	3,250,000	Confidence
Draper	1,000,000	Soulsbyville
Gilson	1,250,000	"
Grizzly	1,500,000	"
Soulsby	5,500,000	"
South United	1,700,000	"
Pocket & Misc.		
Bonanza	$2,000,000	Sonora
Golden Gate	1,500,000	"
Sugarman	1,000,000	"
Jackass Hill Mines	500,000	Tuttletown*

*Tuttletown District located on the Mother Lode, but typified by pocket mines.

Figure 10

GOLD MINES of the JAMESTOWN MINING DISTRICT

From: Clark, Gold Districts of California

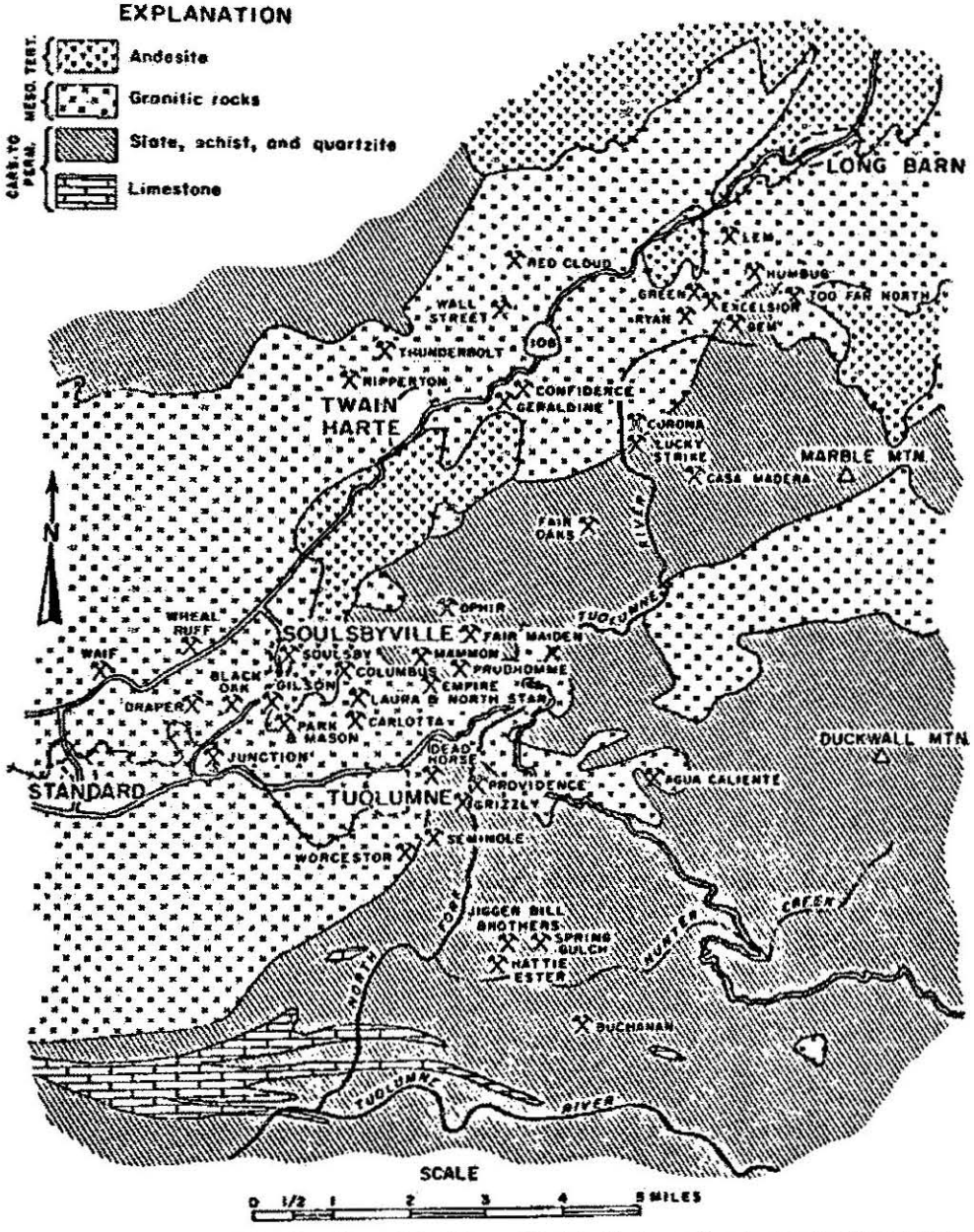


Geologic Map of Jamestown District, Tuolumne County. The map shows the locations of the mines. *Modified from Eric, Stromquist and Swinney, 1955.*

Figure 11

GOLD MINES of the CONFIDENCE and TUOLUMNE MINING DISTRICTS

From: Clark, Gold Districts of California



Geologic Map of Soulsbyville and Confidence Districts, Tuolumne County. The locations of the mines are shown. *After Turner and Ransome, 1897 and 1898.*

warrented by the increased yield in gold.[4] [5]

Gold mining was an expensive and complex process. While it did produce a slight increase in profits, the shipment of ore for reduction at Selby was never a major factor in the viability of the mines of Tuolumne County. A statistical analysis of county gold production figures, Sierra ore shipments, and Sierra construction dates failed to show any significant correlation between railroad use and gold production in the county.[6] The Eagle-Shawmut mine, which only in later years shipped ore over the Sierra, was one of the most profitable and productive mines in the county. One must therefore conclude that, while gold mining was important to the Sierra, the Sierra was not particularly important to the gold mining industry of Tuolumne County.

Indeed, the gold industry proved to be less important to the Sierra Railway than had been anticipated. In May 1913 T.S. Bullock stated that lumber operations were started because mining income had not been as large as expected when the line was proposed.[7] This was probably a major reason for the extension to Sonora, and certainly was

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4 Edward C. Leonard, "The Mills of Angels", Las Calaveras, XIX (Jan. 1971), pp. 9-15.

5 The Eagle-Shawmut mine was located some distance from the Sierra, on the planned Yosemite Short Line Railway. Those narrow gauge rails reached the mine in 1906, just before the project was halted following the San Francisco earthquake and fire, as related later. The tracks remained in place until 1917, and some heavy mill equipment was shipped in over them, but most supplies were hauled in from Chinese station. Because of the long wagon haul, the Eagle Shawmut operated its own Cyanide plant into the 1920s to process its ore.

6 Correspondence and discussions between the author and Dr. David Fairley of the Ohio State University Statistics Department, Columbus, Ohio, between April 1983 and February 1984, based on Appendixes A and D, plus dates as given in the text. Dr. Fairley's advice, suggestions and explanations were invaluable to the author on all statistical presentations in this paper. However, the work and other analyses are by the author, as are all errors.

7 Bullock letter, CRRC Valuation Papers, CSA.

for the extension to Tuolumne between 1898 and 1900. A study of freight shipment totals on the Sierra show that from 1901 to 1918 ore shipments averaged about 15 percent and lumber about 60 percent of all freight originating on the line (see Appendixes A and B).

Marble from the Columbia area has been used for building material at least since the 1870s. Used in buildings in both Tuolumne and San Francisco, it was laid for sidewalks around the Palace Hotel in 1878, where it showed good enduring qualities. It is found in several colors from white and veined to black, blue and buff, and in purity and characteristics up to statuary quality.[8]

The Columbia Marble Company was organized as a partnership in 1891, taking over an existing quarry. It built up a successful and continuing business, remaining in production until 1942. It was the only quarry in Columbia, and perhaps the entire state of California, to produce on a regular, continuing basis for more than a few years in the twentieth century. As a vertically integrated company, it operated the quarry in Columbia, a finishing and polishing plant in San Francisco, and provided its own workers to install the finished product.[9]

Hampered by transportation costs, the Columbia operation worked on a limited basis before the Sierra Railway was built. Observing its potential, T.S. Bullock and Andre Poniatowski leased the operation in September 1898, with the hope of receiving a contract to supply marble

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8 XII State Mineralogist Report, 1896, p. 633; Tuolumne County, California (Sonora, California: Union Democrat, 1909), p. 44, hereafter cited as Union Democrat.

9 XII State Mineralogist Report, 1896, p. 633; Union Democrat, p. 44; California Journal of Mines and Geology, 1949 (San Francisco: California Division of Mines), p. 77.

for the new San Francisco Post Office, as already related. The decision to build that structure of granite instead of marble ended their hopes, and they did little with the property other than cut some marble to face the Sonora depot. The lease was terminated after two years, and after a suit settled an ownership question, operations resumed in 1901 under the original management.10

The return of the quarry to the owners marked the beginning of a period of improvements in the operation. Quarry machinery was electrified in March 1902 and in July the finishing works in San Francisco were built. Dissatified with the rates the Sierra was charging, the company purchased 23 ton, 60 horsepower Best steam traction engine and three cars to haul the cut marble directly to Oakdale, planning to haul general freight on the return trip. A year of operation showed this to be no savings, and thereafter the tractor hauled the marble only as far as Sonora. On occasion it was also leased out to transport lumber from the mountain sawmills. Marble contracts for the Merchant's Exchange Building, Flood Building and Palace Hotel in San Francisco kept the company busy.11

The San Francisco finishing plant, located on Bannon Street between second and third, was destroyed in the 1906 earthquake and fire. This stopped operations for a time, until the plant could be rebuilt. The Sonora newspapers regularly noted shipments of marble to the City, and a special speciman was prepared for the 1915 Panama-Pacific

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10 Copy of lease agreement, collections of the California State Railroad Museum; Deane, p. 42; Sonora Banner, Feb. 24, Nov. 19, 1899, Sept. 14, 1900, Sept. 27, Nov. 22, 1901; Freshman correspondence, Bancroft.

11 Sonora Banner, March 14, July 25, Sept. 26, Oct. 3, Nov. 28, 1902, June 26, Oct. 23, 1903, Sept. 23, Dec. 30, 1904.

Exposition. A new quarry was opened in 1921 and operations continued at a steady pace.[12]

Inspired by the success of the Columbia Marble Company, a number of other companies opened quarries in the Columbia area over the years. The California Marble and Construction Company, Baxter Marble Works, Warren Marble Quarry, Warner Marble Quarry, Sonora Marble Works and Bell Marble Company all tried their hand, but none lasted more than a few years in the business. Alaska marble, with transportation costs roughly a third of those from Tuolumne County before World War I, provided stiff competition for the California product.[13]

Marble was not the only commercial development of the Tuolumne County limestone deposits. In June 1902 experiments were conducted to see if the quality of lime rock near Sonora justified erecting kilns to produce burnt lime products. It did, and by July 1903 Engler's lime kiln on Shaw's Flat Road northwest of Sonora was in operation. In September 1905 the Pacific Lime & Plaster Company, an experienced firm with plants in other parts of the state, began erecting kilns southwest of Sonora on the Sierra mainline. The California Lime Company, later California Lime & Hydrate Company, also built a plant southwest of Sonora in 1905, and by 1909 there were additional plants at Brown's Flat and Shaw's Flat. Lime tonnage on the Sierra climbed dramatically and steady shipments of lime products became common on the line.(see Figure

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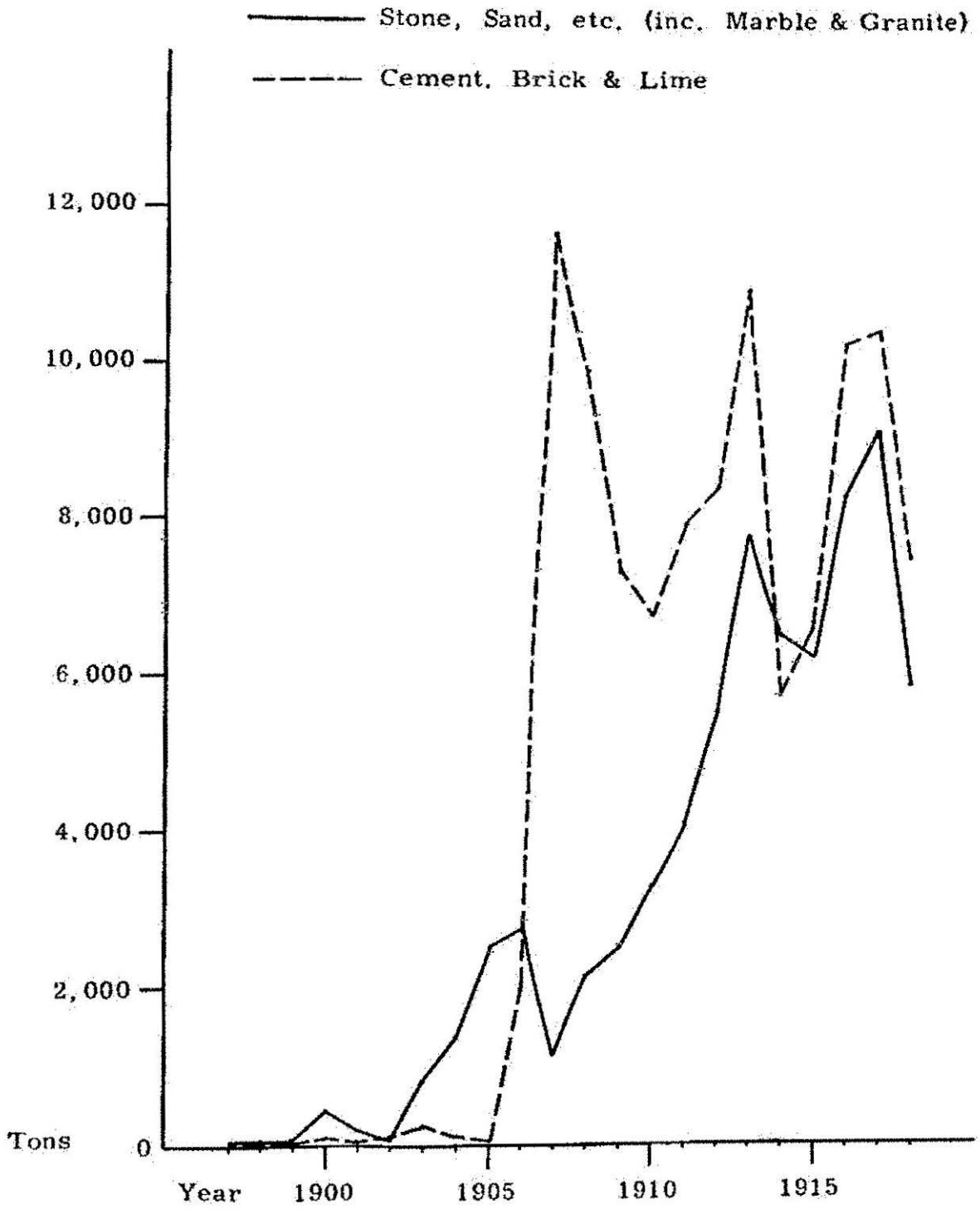
12 Sonora Banner, Dec. 30, 1904, Jan. 8, 1915, other issues Feb. 1899-June 1918; XXIV State Mineralogist Report, 1927, p. 51.

13 Sonora Banner, June 1905 to April 1918; XIV, XVII and XXIV State Mineralogist Reports, 1916, 1921 and 1928, pp. 169-172, 488 and 51 respectively.

Figure 12

SIERRA RAILWAY ORIGINATING SHIPMENTS of
STONE and LIME PRODUCTS

Based on: Appendix 1



12 and Appendix A).[14]

The importance of rail transportation to the limestone and marble industries of Tuolumne County is born out by statements made in newspapers and other publications at the time. Inexpensive transportation is repeatedly mentioned as crucial to the successful development of these resources. While shippers were not always happy with the rates the Sierra Railway charged, they were low enough for the industries to operate at a profit, if well run.[15]

Tonnage figures of traffic originating on the Sierra (see Figure 12), particularly those for lime products, chart the development of the industry. (No significant shipments of cement or brick originated on the Sierra.) The figures for marble, being mixed in with sand and other stone (including gravel) are a little more difficult to use, but indications are that shipments through about 1910 were probably mostly marble. After that time the information is not clear, but it is possible that marble continued to be the primary product in this category as late as 1917.[16]

Perhaps inspired by the success of marble, several attempts were made to develop granite quarries in the county. After preliminary work in 1902 the Phoenix Lake Granite Company began shipping blocks of stone

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14 Sonora Banner, June 2, 1902, July 3, 1903, Sept. 8, Oct. 27, 1905, Jan. 12, 1906, Oct. 6, 1911; Union Democrat, p. 46; XIV State Mineralogist Report, 1916, pp. 168-9; Arthur Dunn, Tuolumne County, California (San Francisco: Sunset Magazine Homeseekers' Bureau, ca. 1915), p. 11.

15 Sonora Banner, June 1898-Dec. 1910; Union Democrat, several pages; Dunn, several pages; David H. Walker, Jr., Tuolumne County, California (San Francisco: Sunset Magazine Homeseekers' Bureau, ca. 1912), several pages.

16 Bullock, Freshman and Hamblin correspondence, Bancroft; Sonora Banner, June 1898-June 1918.

by August of 1903. Shipments continued past 1905, but transportation costs prevented their making a profit. According to statements made at the time, the Sierra offered a favorable rate, but charges for the wagon haul from the quarry to the spur raised costs higher than prices charged by companies in other counties with direct rail connections. All agreed that what was needed was a spur to the quarry, and a survey locating a line was completed, but construction awaited a large contract for granite that never came. In later years the Sonora Granite Company also opened a quarry, but after shipping a few carloads, this proved no more successful.[17]

Important copper mines have operated both to the north in Calaveras and to the south in Mariposa, but no large mines have ever been developed in Tuolumne County. There have been several flurries of activity and some ore has been shipped, mostly from the area of Stent and Chinese station. From 1902 to 1908 several prospects were worked, and during World War I, when copper prices were high, there were more shipments, but the finds have never justified the extensive development that would be needed to make the low-grade ore profitable.[18]

Chromite, manganese and magnesite were also subjects of development during the high prices of World War I, again from the area around Chinese station. With foreign sources unable to make normal shipments because of the war, ads appeared in the newspaper from companies wishing to purchase chrome ore. Frequent mentions were made

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17 Sonora Banner, April 25, 1902, June 12, Aug. 14, 1903, Oct. 21, 1904, March 10, 1905; Union Democrat, p. 46, XXIV State Mineralogist Report, 1928, p. 47.

18 Sonora Banner, Feb. 6, 1903, Jan. 15, 1915, March 30, 1917; Union Democrat, p. 42; Eric, p. 45; Olaf P. Jenkins, Copper in California, Bulletin 144 (San Francisco: California Division of Mines, 1948), pp. 12-15, 354-6; Clark, Gold Districts of California, p. 119.

of operations in the county between 1916 and 1918, with ore reportedly bringing $14.00 per ton in the railroad cars, most of which was profit. Still, only one mine appears to have shipped more than 1000 tons before the bottom dropped out of the market after the war. A few manganese prospects shipped ore during the war, the most being about 45 tons shipped from one claim in 1918, but the deposits never proved to be significant or particularly valuable. Several magnesite deposits were also prospected, and about three carloads of ore were shipped in 1917, butthe mines were never developed.[19]

In the years since World War I mining and mineral industries have generally continued to decline in importance in Tuolumne County. Gold mines suffered greatly from high prices of labor and materials in the 1920s. The depression and the revaluation of gold from $20.67 per ounce to $35.00 per ounce by the government brought renewed activity, but World War II and the closure of most mines by government order intervened before any significant finds were made. As mentioned before, Columbia Marble Quarry closed in 1942, but the Pacific Lime & Plaster Company and the U.S. Lime Products Company (successor to the operations at Shaw's Flat and Brown's Flat, and the purchaser of the Columbia Marble Company property) continued, with Pacific Lime & Plaster only closing their operation a few years ago. World War II sparked renewed interest and development in copper, chromite, manganese and magnesite, with no more success than during the first war. Several asbestos

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19 Sonora Banner, Aug. 1916-Aug. 1918; Eric, p. 45-6; Parker D. Trask, Geologic Description of the Manganese Deposits of California, Bulletin 152 (San Francisco: California Division of Mines, 1950), pp. 342-7.

prospects have been developed in recent years, and ore shipped over the railroad, but this shows no signs of developing into a major industry. Since the First World War the most important industry in the county has clearly been not minerals, but lumber.[20]

20 Eric, pp. 45-6; Trask, pp. 342-7; Jenkins, pp. 12-5, 354-7; Clark, Gold Districts of California, pp. 5-8, 41, 77-8, 121, 126; California Journal of Mines and Geology, 1949, pp. 44-77.

Lumber

The original sawmills in Tuolumne County were built to support the mining industry, and date back to the early years of the Gold Rush. It was not until the coming of the Sierra Railway that large mills were built to cut lumber for export outside of the county. The first of these was the West Side Flume & Lumber Company, later renamed the West Side Lumber Company. In 1900 they opened a large mill in the town of Tuolumne, and eventually added a drying kiln, planing mill and box factory. The other major operator was the Standard Lumber Company, headquartered initially in Sonora and later developing the company town of Standard. Standard started by acquiring, through purchase, lease and contract, the output of several mountain sawmills, and by constructing a box factory and a sash and door factory in Sonora. Gradually all operations were concentrated at Standard. In the years before World War I other operations were planned and a few were built, but none reached a size large enough to have a major impact on Tuolumne County's development.

The first sawmill to operate in the county was established about 1850 by Major Charbonell in Sonora. It was powered by steam, and probably used a "muley", or up-down type, saw. By 1856 the county boasted 24 operating sawmills: 14 steam-powered and 10 water-powered, with one to four saws each. Most had muley saws, but a few used the more efficient circular saw. All together, the output for 1855 was 15,000,000 board feet, less than the demand. Also in 1856 the first planing machine in the county was installed by Smith, Morse & Company

six miles east of Columbia.[1]

Most of the early sawmills were located in the timber belt in the higher mountains, east of most of the gold mining areas. When the nearby timber was exhausted, they would be dismantled and moved to a new location. Around the mills small settlements came into existence to provide services for the workers and their families. An example is Sugar Pine, site of the Sugar Pine Lumber Company sawmill, were a Post Office was established in 1866 which is still in operation, although the lumber mill is long gone.[2] Standard Lumber Company's Middle Camp station was later located nearby.

As mining declined in the 1880s, so did the need for lumber. A survey of listings in a Rand, McNally directory of 1884 shows only four companies in Tuolumne County, one with two mills. By the late 1890s, after the mining revival had started, the major lumber operators were S.S. Bradford, N.L. Knudsen, Alfred Hiatt, the Sonora Lumber Company and a man named Hale, in addition to other smaller operations.[3]

The West Side Flume & Lumber Company was incorporated by a group of local Tuolumne County men on May 31, 1889. It appears in the early years that timberlands were acquired by the company, but little was done to develop them. Things began to change in 1898 and 1899, by which time the Sierra Railway promoters, W.H. Crocker, Henry J. Crocker and T.S.

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1 Union Democrat, p. 47; Ferrell, p. 14.

2 Sonora Banner, April 4, 1902; H. E. Shalley, History of California Post Offices, 1849-1976(La Mesa, California: Postal History Association, 1977), post offices listed alphabetically by state and office name.

3 Rand, McNally's Directory and Shipping Guide of Lumber Mills and Lumber Dealers in the United States and Canada (Chicago: Rand, McNally & Co., 1884); Sonora Banner, July 1898-April 1911.

Bullock, had purchased and reorganized the company. The company announced plans to construct a large new mill in October of that year, and by November the Sierra was extending its line toward the site. The Frank Baker Ranch near the East Belt mining town of Carters, also called Summersville, was purchased for the mill, and a town named Tuolumne was laid out.[4] Construction also started on a narrow gauge logging railroad into the timber.[5]

The Sierra Railway line was officially opened to Tuolumne February 1, 1900, and later that Spring the big double band saw mill began cutting lumber. An initial report of the West Side on January 26, 1900, showed the logging railroad already 11 miles long, snaking toward 43,700 acres of timberland located from 3300 to 6000 feet elevation between the South Fork of the Stanislaus and the Tuolumne Rivers. May 25 and 26 saw a big excursion on the line, with many people riding the cars to a picnic at Nashton in the woods, a publicity stunt by the company to promote the operation and seek investors.[6]

While the narrow gauge railroad had been built primarily to serve the lumber company, the promoters also had other ideas for it. Accordingly, it was incorporated as the Hetch Hetchy & Yosemite Valleys Railway Company of California on August 27, 1900, with plans to extend to the valleys of its title. A passenger coach was placed in operation serving several camps along the line, a hotel was built in Tuolumne, and

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4 Some years later, after the business district of Carters was destroyed in a fire, the remaining part of the town was absorbed by Tuolumne.

5 Incorporation Papers, CSA; Union Democrat, p. 59; Sonora Banner, Aug. 19, Oct. 28, 1898, March 10, Nov. 17, 1899; Ferrell, p. 18.

6 Legal and Financial Material, Bancroft; Deane, p. 85; Sonora Banner, June 1, 1900; Photographs of the excursion, Tuolumne County photographs, California Historical Society, San Francisco.

an attempt was made to have the Federal Government built a road from the end of the line to the two valleys, but the project never really came to anything. The railroad, however, retained its title until 1943.[7]

Meanwhile, the lumber company continued to expand and develop. They announced construction of a large drying kiln in September 1900, and an electric plant was established at the same time. This provided lighting for the towns of Tuolumne and Carters. In 1901 they built a box factory, and then enlarged it in 1902. Expansion was in the air.[8]

The front office was also changing. In August 1901 J.T. Adams, an experienced Eastern lumberman, became the new general manager, and in October it was announced that he had purchased T.S. Bullock's interests in the company. On January 23, 1902 the company was again reorganized and the official name changed to West Side Lumber Company. Then in July 1903 it was announced that the Crockers had sold their interests to some other Eastern lumbermen; J.K Prince and G.W. Johnson, along with a steel man, William R. Thorsen, purchased controlling interest in the company and became partners with J.T. Adams. The company settled down to do what it was intended to do, produce lumber, with experienced men to run it.[9]

As the years went by, the West Side continued to prosper, and the railroad extended further and further into the woods, averaging about one new camp per year (see Figures 1 and 13). In 1909 it was reported to be employing over 500 men and cutting 30,000,000 to

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7 Incorporation Papers, CSA; Ferrell, p. 38; Sonora Banner, April 25, 1902. See also the chapter on Passenger Travel and Tourism.

8 Sonora Banner, Sept. 21 (two entries), Oct. 26, 1900, Aug. 30, Dec. 6, 1901, Jan. 17, 1902.

9 Sonora Banner, Aug. 2, Oct. 18, 1901, Jan. 31, 1902, July 24, Dec. 11, 1903; Incorporation Papers, CSA; Freshman Correspondence, Bancroft; Ferrell, p. 42.

Figure 13

LUMBER CAMPS of the WEST SIDE LUMBER COMPANY

From: Krieg, Last of the 3foot Loggers

Camp	Season Operated	Miles From Volcano	Elevation	Remarks
1-7	1897-1899	0-11		RR construction camps
8	1900 1950-'52	11	3480	Car repair shops until 1905 1st logging camp 26-car siding
9	1901	15	3950	20-car siding
10	1902	15	4020	
11	1903-'12			RR construction camps
12	1903	19	4900	
13	1904	21½	4800	
14	1912-'25			RR construction camps
15	1905	23	4400	
16	1906	19½	4800	
17	1907	24	5200	
18	1908	24	5050	
19	1909	26	5100	
20	1910	30	5370	
22	1912	32	4720	
21	1913	22½	5017	RR construction camp, then logging camp
23	1914	25	5017	
24	1915	29	5017	Also RR maintenance
25	1915	33	5017	
26	1916	41	5400	Camp Clavey, 1958-'60 reload point
27	1921	40½	5167	
28	1922	47	4850	
Hull Cr.	1922	27	5017	
29	1924	45½	4900	
Lilly Cr.	1924	33	5550	
30	1926	42½	5167	
31	1926	34	5500	
32	1925	46	5167	RR construction camp
33	1927	47½	5600	
34	1927	36	5400	
35	1928	52½	6300	Highest camp
36	1928	48	5167	
37	1929	55	6000	
38	1930	52½	5167	
39	1930 & '35	55½	4450	Closed during depression
40	1936	58	5167	
41	1938	62	5800	
42	1939	63½	5500	
43	1941	61	5167	
44	1943-'49	67	5200	Last spur logging
45	1950-'58	56	4500	
Niagara	1957 & '58	49	5167	Relogging in Govt. timber
Siding				
Baker's		1	2700	100 cars
Dry Tank		3½	2700	17 cars
River		7	2560	17 cars
Straight		10	3120	22 cars
Deadwood		19	4780	38 cars
Buffalo		37	5060	30 cars – Last rail haul
Crumbine		44	5220	48 cars – Named for RR surveyor
Reynolds		45½	5200	4 cars
Fleming		50	5260	6 cars
Powder House		54	4890	18 cars
Dead Man		55	4580	25 cars – Near grave of unidentified, dry-gulched miner discovered 1898
Hanlon		59	5200	Named for Genl. Supt. of logging & transportation 1904-1940

35,000,000 feet of lumber per year. In 1912 it owned 54,670 acres of land (up from 43,700 acres in 1900). Of this, 39,590 acres were uncut timber. A 1921 listing showed West Side as one of the largest manufacturers of sugar and California white pine lumber in the state. With new land purchases, it still had 37,950 acres of uncut timber, estimated to contain 1,021,398,000 feet of sugar and white pine, plus red fir, white fir and cedar. The double band saw mill's capacity was 50,000,000 feet per year.[10]

A change came to Tuolumne in March 1925 when the owners of the nearby Standard Lumber Company negotiated a purchase agreement for the West Side company. In April 1926 the Tuolumne and Standard operations, along with other properties controlled by the owners, were consolidated into the newly-formed Pickering Lumber Company. While the ownership changed, the operations at Tuolumne were little effected, other than a new name on the locomotives and the stationary. Operations continued under the Pickering banner until 1930, when the Depression closed the mill.[11]

In 1934 the old owners reorganized the West Side Lumber Company and reopened with a loan from the Reconstruction Finance Administration. Modernizations followed in the 1940s and 50s, with trucks being used increasingly. Still, the railroad continued to haul the logs into Tuolumne, even when they were reloaded from trucks in the woods. The final logging railroad camp was almost at the border of Yosemite

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10 Union Democrat, p. 49; Legal and Financial Material, Bancroft; 4th Biennial Report of the State Forester (periodic), 1912 (Sacramento: State of California), p. 58; Moody's Manual, Industrial Section (annual), 1921, 1922 (New York: Poor's Publishing Co.), hereafter cited as Moody's Industrial.

11 Ferrell, p. 95; Incorporation Papers, CSA.

National Park. Then in 1958 the reorganized Pickering Lumber Corporation purchased the West Side again. Trucks took over the log hauling in 1961, and in 1962 the mill burned to the ground during a strike. After that logs from the old West Side property were trucked to the mill at Standard.[12]

In the years following the 1960 shutdown of the railroad, some of the equipment was sold, but much of it remained in Tuolumne. In 1968 a tourist operation, under Pickering Lumber Company ownership, was started with the equipment that remained under the name West Side & Cherry Valley Railway. Glen W. Bell, founder of Taco Bell, purchased the entire operation in 1976. A friend of Walter Knott, founder of Knott's Berry Farm, Bell had big ideas for a theme park, and invested millions of dollars.[13] Reduced tourism, because of skyrocketing gas prices, and other complications dictated that Bell sell the park in late 1979. A succession of other operators were unable to make it a paying proposition, and it was closed in 1982. Its ultimate fate is not yet known. At this writing the equipment and facilities remain in Tuolumne.

Unlike the West Side Lumber Company, which began as a single entity, the Standard Lumber Company started as a collection of existing mills and lumber facilities in several different locations. By about 1918 it had evolved into a single, fairly unified operation somewhat like the West Side, but before that time its development was full of diversity.

The Standard Lumber Company was incorporated September 30, 1901,

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12 Ferrell, pp. 95, 223-4.
13 Ferrell, pp. 236-7.

with D.H. Steinmetz, one of the incorporators, as General Manager. In October T.S. Bullock joined the company as President, having previously sold his interests in the West Side Flume & Lumber Company to raise the needed money. These two became the prime movers of the lumber firm.[14]

With the company organized and financed, the promoters set about to acquire facilities and lumber. On April 25, 1902, it was announced that Standard had leased the lumber yards and planing mill facilities of S.S. Bradford and N.L. Knudsen, located near the Sierra Railway's Sonora depot, and had contracted to purchase the output of Bradford's and Knudsen's mountain sawmills. By December Standard Lumber plans for a large sash and blind factory in Sonora were crystalizing, and soon production from this and a box factory were being shipped out over the Sierra Railway.[15]

Transporting lumber from the mountain mills to Sonora by team was costly and slow, and the Standard company tried several alternatives. Several operators of steam traction engines contracted to haul lumber "trains" from the mills, and these were joined by other traction engines leased and purchased by Standard. Soon the giant products of Best and Holt were clanking down the Mono-Sonora highway and along roads built by the lumber company, raising dust and causing consternation along the way.[16]

The traction engines effectively hauled the lumber from the individual sawmills, but they were not the final answer. Congestion and

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14 Incorporation Papers, CSA; Sonora Banner, Oct. 18, 1901; Statement by Bullock that he sold interests in West Side and then started Standard Lumber Company, CRRC Valuation papers, CSA.

15 Sonora Banner, Aug. 25, Dec. 5, 19, 1902, Jan. 8, 1904.

16 Sonora Banner, July 29, Sept. 2, 1904, April 21, 1905, May 17, 1907.

normal traffic caused problems on the roads outside of Sonora. Accordingly, Standard Lumber incorporated the Sugar Pine Railway on February 24, 1903, to build from Campbells station (later named Ralph) on the Sierra Railway to Middle Camp, near the town of Sugar Pine. In the early stages of construction the traction engines used the right-of-way, but ultimately lumber was transfered to railroad cars at Middle Camp. The Sierra Raqilway initially leased the rail line and operated it as a branch, but after 1908 the Sugar Pine's own organization operated it.[17]

Meanwhile, Standard continued to expand. There were constant additions and improvements made to the facilities in Sonora. In the mountains, the company purchased the South Fork mill of Alfred H. and Laura Hiatt in June 1905. In March 1906 the acquisition was the Sonora Lumber Company property, including a lumber yard in Sonora and a new mill in the mountains at Cold Springs. By 1907 Standard had purchased the Empire City mill and other properties, following S.S. Bradford's death. Soon only Knudsen was still selling cut lumber to Standard under contract. To supply the mountain mills, Standard made frequent purchases of timberlands.[18]

Having acquired ownership of mountain mills, Standard Lumber moved to further improve its transportation system. In the summer of 1906 the company leased two small locomotives and some cars from the Yosemite Short Line Railway and moved them to Empire City. Using this

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17 Incorporation Papers, CSA; Sonora Banner, Jan. 23, Feb. 28, May 1, Aug. 7, 1903, March 11, 1904, June 16, 1905, Jan. 5, 1906, April 24, 1908; Board of Director's Minutes, Bancroft.

18 Sonora Banner, Oct. 21, 1904, March 24, 31, June 9, 16, July 28, 1905, Jan. 26, March 30, 1906, Feb. 2, 8, Dec. 6, 1907. Further information on Sonora Lumber Company will be found below.

equipment, a rail line of extra narrow 30 inch gauge (as opposed to the more normal U.S. narrow gauge of 3 feet) was constructed from there to the Cold Springs mill. Thereafter, all cut lumber from Cold Springs was hauled by rail to Empire for shipment to Sonora. At the same time the standard gauge (4 feet, 8 1/2 inches) Sugar Pine Railway was extended to a point above the South Fork mill, and an incline tram was constructed to the sawmill.[19]

Expansion continued in 1908, in part prompted by a million dollar box contract with the Fruit Growers Supply Company of Los Angeles. After more than a year of preparation, the narrow gauge line at Empire was incorporated as the Empire City Railway on July 27, 1908. A connecting line from Empire to Lyons Dam was built, using large inclines to ascend and descend the intervening ridge and a probable third incline in the traverse of the ridge. The company built an extension of the Sugar Pine Railway to Lyons Dam to meet the Empire City Railway, and there constructed a transfer station for transhiping the lumber from the narrow gauge cars to those of the standard gauge line.[20]

In 1908 Standard also purchased the mill and excess lumber of the Union Construction Company at Camp 31, and presumably their railroad as well. They built a tramway to haul the lumber to Lyons Dam for

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19 Sonora Banner, May 11, June 1, July 6, 1906, March 29, June 21, 28, 1907; Tuolumne Independent, Aug. 22, 1908; Monthly maintenance records, June, Aug. 1906, Sierra Railway collection, California State Railroad Museum, Sacramento, hereafter cited as CSRM collection. Further information on the Yosemite Short Line Railway will be found below and in the Passenger Travel and Tourism chapter.

20 Sonora Banner, April 19, 1907, June 19, July 24, Sept. 4, Oct. 2, 23, Nov. 13, 1908; Tuolumne Independent, Aug. 22, Oct. 1, 3, Nov. 7, 12, 17, 19, 26, 1908; Incorporation Papers, CSA; Letter from Ron Core, Twain Harte, California, of July 25, 1983, explaining Standard contract with Fruit Growers Supply, probably based on Tuolumne County Courthouse records; Union Democrat, p. 51.

shipment to Sonora, and by 1909 all the lumber had been removed. Also in 1908 a sawmill was built at Lyons Dam, quite possibly using the machinery from the Camp 31 mill. This mill operated for about three years, before being dismantled. At least two Shay locomotives had their gauge reduced from 3 feet to 30 inches for use on the Empire City Railway. In addition, a short 3 foot gauge rail line was built from the South Fork mill into the timber and construction started on a standard gauge logging line Strawberry from the Sugar Pine Railway at Lyons Dam. Financing for the expansions came from an increase in the capital stock in 1908 and an increase in the bonded indebtedness in 1909. This probably brought the Suisun City bankers R.D. and L.M. Robbins into the company as partners.[21]

The year 1908 also brought some complications for Standard Lumber. On July 7 the Cold Springs mill facilities, including the bunkhouse, boarding house, blacksmith shop, commissary building and the mill itself, burned to the ground, an uninsured loss. Under pressure from the Fruit Growers Supply contract, Standard wasted no time in starting reconstruction of a new, and even better mill. A new boiler had arrived by the end of July, and a new engine by late August. Placed in operation at the end of October, the new mill featured a band saw instead of the circular saws used at the other Standard mills. All in all, it made for a first-class operation.[22]

An enumeration of the Standard Lumber company in 1909 found it

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21 Tuolumne Independent, Aug. 22, 29, 1908; Sonora Banner, Nov. 6, 20, 1908, June 4, Aug. 20, Sept. 17, 1909, April 15, Oct. 7, 1910, Aug. 29, 1913; Incorporation Papers, CSA. Further information on the Union Construction Company will be found below and in the Water and Hydroelectricity chapter.

22 Tuolumne Independent, July 9, 30, Aug. 1, 22, Oct. 29, 1908; Sonora Banner, July 10, 31, Sept. 11, Oct. 2, 1908.

employing about 500 people, 300 in the mountains for seven months of the year and 200 at the factories in Sonora year-around, earning an average of $2.75 per day. In 1908 they had cut more than 15,000,000 feet of lumber, of which 75 percent went to the box and door factories and the balance had been shipped, largely to foreign countries and eastern markets. Four mills were in operation, with Empire, South Fork, and Lyons Creek using circular saws and the new Cold Springs mill running its band saw. The Sugar Pine Railway was 15 miles long, and Standard operated a 4 1/2 mile logging spur off of it. Two locomotives and 40 steel flat cars were in use. In addition, the Empire City Railway was 12 miles long and operated four locomotives and about 70 cars. T.S. Bullock was listed as President, D.H. Steinmetz as Vice President and General Manager, and S.D. Freshman as Treasurer.[23]

Experience operating the mountain sawmills led Standard Lumber to the conclusion that it would be more efficient to have a large mill located at a lower elevation where it could run all year, much like the West Side company. Accordingly, they purchased an option on the Xaver Fassler Ranch east of Sonora in November of 1908. The station name was changed to Standard, and a lumber year was established there in 1909, as the first stage in the planned development.[24]

Plans progressed in September 1910 with the establishment of a post office for the anticipated company town at Standard. In October construction began on a log pond for the projected mill. Lumber sheds were erected in 1911, and at the end of the 1912 season in October, the band saw mill at Cold Springs was dismantled and transported to Standard

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23 Union Democrat, pp. 50-1.

24 Tuolumne Independent, Nov. 21, 1908; Sonora Banner, Aug. 13, 20, Sept. 17, 1909.

to become the new mill there. By October of 1913 the new mill was in full operation, working its way through a pond full of logs. This was just as well, as the Empire mill had been destroyed by a fire early in the 1913 season, leaving only the South Fork mill in operation.[25] [26]

Changes came to the operations of the company after the opening of the mill at Standard. The Empire City Railway's title was legally suspended after November 30, 1912, and Standard assumed operations of the line directly. After the Empire mill burned, the transfer platform at Lyons Dam was rebuilt to handle logs, which were thereafter hauled down the incline for shipment to Standard. These operations continued until November 1917, when it appears the last logs were hauled over the line. South Fork mill continued working until October 1917, when a fire believed to be from arson burned the incline tramway, bunkhouses and other main buildings, and forced the closure of the camp, the last of the mountain mills used by Standard.[27]

With the gradual end of the small mountain operations, Standard Lumber focused on extending its standard gauge logging lines and shipping the logs to its new mill. Following the South Fork of the Stanislaus River towards Strawberry, Rushing camp was opened in 1912, located just above Lyons Dam. This was followed by Sequoia Camp in 1913, Fraser Camp by 1914, Harvy Louis Camp by 1916, and Harry Lowell Camp in 1918, as well as Jenness' Flat Camp, reached by a branch from

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25 Shalley, entry for Standard; Deane, p. 128; Sonora Banner, Oct. 7, Dec. 9, 1910, Jan. 20, Aug. 11, Oct. 20, 1911, March 15, Sept. 13, Oct. 11, 18, Nov. 1, 1912, May 30, Aug. 29, Oct. 10, 1913.

26 The Lyons Creek mill appears to have operated only from 1908 to 1911. On May 24, 1912 the Sonora Banner reported that the machinery from the Knudsen mill was brought down on the 21st and shipped to Groveland for use by the Yosemite Park company.

27 Incorporation Papers, CSA; Sonora Banner, March 27, June 19, 1914, Aug. 20, 1915, March 10, 1916, Aug. 31, Oct. 26, Nov. 23, 1917.

Fraser Camp. A logging spur was also run up Lyons Creek from the transfer dock of the Empire City line. In recognition of its role as just a logging railroad, the Sugar Pine Railway was leased to the Standard Lumber Company (also its owners) in 1918. They took over direct operation of the line, and in 1921 the Railroad Commission allowed them to drop the common carrier status of the Sugar Pine. From then on its job was just hauling logs.[28]

In 1919 a change in management occurred at Standard. W.R. Pickering acquired control of the company, probably by purchasing T.S. Bullock's interest after he died in May of that year (see above). Steinmetz and the Robbinses remained with the company after the purchase, but Pickering became President and directed the course thereafter. The new owner, who also owned several other lumber companies around the United States, brought experience and money to the operation at Standard. As related above, the West Side operation was acquired in 1925, and all the Pickering holdings were consolidated into the new Pickering Lumber Company in 1926.[29]

New equipment was purchased for the Standard operation after 1919, and new facilities were acquired at other locations in California. A mill at MacDoel, located north of Mt. Shasta, was purchased in 1923 and operated under first the Standard and then the Pickering name, before it was sold about 1930. In 1929 work started on a large new mill

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28 Adolph Gutoherlein, Rails in the Mother Lode (Omaha, Nebraska: Kratville Publications, 1969), pp. 120, 124; Sonora Banner, Oct. 31, 1913. March 27, 1914. May 26, 1916. March 15, April 5, 19, 1918; Photographs, undated, Mallory Hope Ferrell collection; Opinions and Orders of the California Railroad Commission (periodic), Jan. 1,-Aug. 31, 1918 and Nov. 1, 1920-May 31, 1921 (Sacramento: California Railroad Commission), May 23, 1918 and May 3, 1921, hereafter cited as CRRC orders; Poor's Railroads, 1919, 1920 and 1921.

29 Poor's Railroads, 1919, 1920.

at Juniper, just outside of Alturas, to be served by two logging spurs radiating from Hackmore, on the Southern Pacific. This latter plant never went into operation, and was dismantled after Pickering fell into bankruptcy in 1931, as related above.[30]

On March 30, 1937 the Pickering Lumber Corporation was incorporated in Deleware for the purpose of acquiring the property of the Pickering Lumber Company, including that at Standard. With the help of a Reconstruction Finance Corporation loan, operations began again. The mill at Standard burned in July 1945, but a new mill was in operation by 1947. In 1958 Pickering again acquired the West Side, and in 1964 Pickering itself was purchased by Fibreboard Paper products. Rail operations continued until the end of the 1965 season. After an attempt to operate a tourist line on part of the old right-of-way failed, the equipment was stored and gradually disposed of. Following the bankruptcy of Fibreboard, the operation was purchased by Louisiana Pacific, the owners today.[31]

While West Side Lumber Company and Standard Lumber Company were the largest lumber firms in Tuolumne County, they were far from the only companies in the mountains. As mentioned before, N.L. Knudsen never did sell his operation to Standard, although he did sell cut lumber. In 1905 D.H. Steinmetz of the Standard company was also involved in the Big

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30 Gutohrlein, p. 156; John R. Signor, Rails in the Shadow of Mt. Shasta (San Diego: Howell-North Books, 1982), pp. 120, 134-5; David F. Myrick, Railroads of Nevada and Eastern California (Berkeley: Howell-North, 1962-3), pp. 382, 893; Abbey's Register of Pacific Coast Lumber and Allied Industries (annual), Vol.9 (1931), (Portland: The Industrial Service Co.).

31 Incorporation Papers, CSA; Gutohrlein, p. 131; Karl R. Koening, Sugar Pine Railway (Burlingame, California: Chatham Publishing Co., 1971), pp. 11-2.

Trees Timber Company, operating above Middle Camp. It is unknown if they ever had a sawmill, but much of their timberland was eventually sold to Standard.[32]

T.S. Bullock was involved in extensive timber speculations, in addition to his Standard holdings. The 30 inch gauge Yosemite Short Line Railway was planned in part to reach some of Bullock's holdings in the Crane Flat area. Some of his holdings in that area were sold to the Northern California Lumber Company in December of 1907. Other holdings in the county were transfered to two companies Bullock helped found: the Bullock Lumber Company and the Sugar Pine Timber Company.[33] Eventually much of these holdings came into the possession of the Yosemite Lumber Company (later the Yosemite Sugar Pine Lumber Company) and were logged in the 1920s and '30s.[34]

One of the more ambitious lumber developments was the ill-fated Sonora Lumber Company, incorporated by several local Tuolumne County men on May 7, 1903. Initially they contracted for the output of the Hiatt's South Fork mill, and laid plans for their own mill at Cold Springs and for a box factory in Sonora. The Cold Springs mill was placed in operation in August of 1904, with the lumber being sold in Oakdale. Then in November disaster struck. On the night of the 15th, just two

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32 Sonora Banner, July 7, 1905, Dec. 8, 1911.

33 According to incorporation papers in the State Archives, the Bullock Lumber Company was incorporated June 5, 1908 in Carson City, Nevada, and the Sugar Pine Timber Company on November 4, 1908 in California. Involved with Bullock in both companies were E.H. Cox and Arthur Hill of the Madera Sugar Pine Company, operating south of Wawona near Yosemite.

34 Sonora Banner Oct. 1905 to Oct. 1913; Incorporation Papers, CSA; Hank Johnston, Railroads of the Yosemite Valley (Los Angeles: Trans-Anglo Books, 1964), pp. 132, 153-159, 169-172; Johnston, Thunder in the Mountains (Los Angeles: Trans-Anglo Books, 1968), an account of the Madera Sugar Pine Company, p. 29-54.

days before the new factory in Sonora was to have begun operations, it burned to the ground, a total loss.

The company made plans to rebuild, but in December of 1905 and January of 1906 the First National Bank and the Tuolumne County Bank demanded payments on the notes they held, resulting in the transfer of all holdings of Sonora Lumber to the banks. By the following March, these holdings and property had been sold to Standard Lumber, as already related. Suits and counter-suits resulted from the sale, these working their way through the courts for the next 15 years, but the Sonora Lumber Company was effectively finished.[35]

When the Union Construction Company began work on the big hydroelectric project on the Stanislaus River, they needed large quantities of lumber to build their flume and for use in other parts of the project. A large sawmill, served by its own railroad, was built on the ridge dividing the South Fork from the Middle Fork of the Stanislaus at a site called Camp 31. This and a smaller Union Construction Company mill at Relief Dam proved to be the only lumber operations in Tuolumne County, other than Standard and West Side, to use rail transportation before World war I. After the conclusion of work at the two sites in 1908 and 1910, the mill machinery was sold to Standard and used by them elsewhere.[36]

The Madary Lumber Company of Fresno operated another mountain sawmill. Located at Sammy Merrill Springs, southwest of Empire, lumber from this mill was hauled to Middle Camp for shipment by rail to the

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35 Incorporation Papers, CSA; Sonora Banner, 1905-1915.

36 A more detailed discussion of Union Construction and the entire hydroelectric project will be found in the Water and Hydroelectricity chapter.

company's finishing mill in Fresno. Regular mention of the mill was made beginning in 1912. In 1918 a small fire at the mill was quickly put out with little damage, but as it occurred just a few days after the finishing mill in Fresno had been destroyed by fire, the newspaper thought it suspicious. Labor problems were not unknown, although few were reported in the local companies. Mills were especially susceptible to arson and a person with a grudge would have little difficulty.[37]

Other small mountain sawmills continued to operate in Tuolumne, occasionally being mentioned in the newspapers. The City of San Francisco built several in connection with their Hetch Hetchy project. The California Peach Growers built a mill at Mather on the Hetch Hetchy Railroad in 1918, and operated their own logging line to the timber. As mentioned earlier, Yosemite Lumber Company built a long incline up from the Yosemite Valley Railroad to reach timber near Crane Flat. None of these influenced Tuolumne County like the big two in Tuolumne and Standard.

In assessing the importance of railroads to large lumber operations in the Sierra Nevada before World War I, two areas of use will be considered: hauling logs to the mill and shipping cut lumber from the mill. Further consideration will be given when a company has a divided operation, such as Standard had, with sawmills located some distance from finishing mills.

A review of all the large sawmills operating in the Sierra Nevada in 1931 (see Appendix E) and a study of their transportation systems shows that all used railroads to bring logs to the mill; this, despite

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37 Sonora Banner, 1912-1918.

the increased use of trucks after 1920. At that time it was impossible to haul in enough logs from the woods to support a large mill without a railroad. This was as true in the '20s as it had been before then. In Tuolumne County, one of the first projects of both West Side and Standard was the construction of a railroad toward the timber to ease their transportation problems, as related above.[38]

To expand on the Tuolumne experience, Standard Lumber continued to face limitations on its growth as long as it relied on small mountain mills with their seasonal shutdowns, even when supported by railroads. The company's real growth occurred after the mill at Standard was opened. What had formerly required four mills to produce in 1910 was being cut by one mill in 1918, with lumber to spare. This example, plus the evidence of all the other large lumber companies in the Sierra Nevada, should be enough to prove the importance of railroads for hauling logs to the sawmills.[39]

The case for railroad hauling from the mill is almost as conclusive. Of the companies listed in Appendix 5, all had direct rail connections except the Madera Sugar Pine mill, which used a flume to transport its cut lumber from its sawmill at Sugarpine to its finishing mill at Madera. The Madera finishing mill, of course, had direct rail connections. That the West Side Flume & Lumber Company never made use of the "flume" in its name, but instead decided on a direct rail connection (through the auspices of the Sierra Railway), should be sufficient

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38 Kramer Adams, Logging Railroads of the West (New York: Bonanza Books, published by arrangement with Superior Publishing Co., 1961), Appendix.

39 For further information on railroads in the lumber industry, consult both the popular and the technical presses, a partial listing of which will be found in the bibliography.

evidence of which was the prefered mode of transportation.[40]

While most lumber companies prefered to locate finishing mills near their sawmills, there are a number of examples were this was not done. In every example of this type among the companies in Appendix E, the Madera Sugar Pine, as already mentioned, is the only one not to use railroad transportation to ship its cut lumber to its finishing mill. Some companies like Diamond Match and California Door, as well as Standard, built their own railroads for this service. The Michigan California Lumber Company used an aerial cableway to carry loaded lumber cars from one side of the American River canyon to the other, not giving up the operation until a cablehouse burned in 1951. Again, the evidence is conclusive that railroads were of central importance to a successful large lumber operation.[41]

With the help of their rail connections, the two large lumber companies in Tuolumne County showed continued growth over the years. West Side and Standard were virtually the only source for lumber traffic on the Sierra Railway before World War I, and freight records for the line show significant increases over the years (see Figure 14). Indeed, forest products made up almost 60 percent of all freight hauled out of or into the county on the Sierra in 1917. In that same year, only 16 percent of traffic consisted of mining products. The year also set a record for total tons of freight hauled over the railroad (see Appendix A). Cut lumber accounted for most of the traffic, but finished millwork

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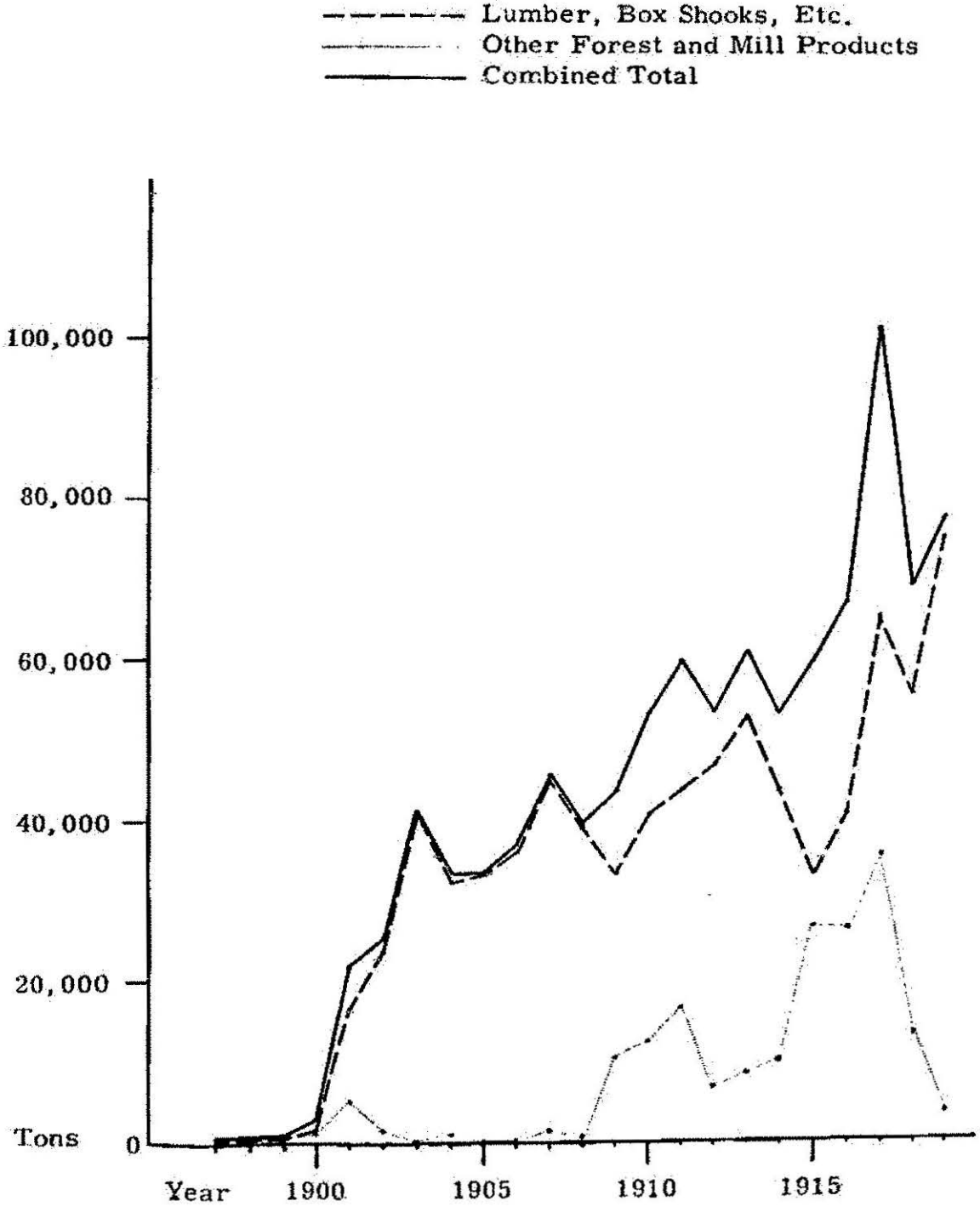
40 Adams, Appendix; Ferrell, p. 17; Johnston, Thunder in the Mountains, pp. 19-92.

41 George Turner, Narrow Gauge Nostalgia (Los Angeles: Trans-Anglo Books, 1971), pp.61-92; Kent Stephens, Matches, Flumes, and Rails (Los Angeles: Trans-Anglo Books, 1977) pp. 21-58, 85-102; R.S. Polkinghorn, Pino Grande (Berkeley: Howell-North, 1966), pp. 49-60.

Figure 14

SIERRA RAILWAY ORIGINATING SHIPMENTS of FOREST and MILL PRODUCTS

Based on: Appendix 1



and other products contributed a sizable total in most years.

Railroads were what made the large lumber industry in Tuolumne County possible. No significant operation developed in the Sierra Nevada Region without them. In return, forest products provided the lyon's share of the Sierra's freight, and also its profits. Examples of two nearby shortline railroads support this conclusion. The Yosemite Valley Railroad, operating from Merced to El Portal along the Merced River, remained profitable as long as the Yosemite Sugar Pine Lumber Company was operating along its line. After the mill closed in 1942, the Yosemite Valley's revenue was cut in half. By 1945 the line was abandoned.

The Amador Central, operating from Ione to Martell near the deep gold mines of Jackson, bearly survived the early years, dependent as it was on gold mining for most of its traffic. The line was almost abandoned in 1938, before a group of local business men purchased it. A major turn in its fortunes occurred in 1940 when the Amador Lumber Company (later Winton Lumber Company) built a large new lumber mill at Martell. Winton purchased the line in 1945, and it became a prosperous railroad, now owned by American Forest Products Corporation.[42] Like the Amador Central, the Sierra is in operation today because of lumber traffic.

Likewise, the lumber industry had a major impact on the people of Tuolumne County, as it became by about 1910 or '15 the most important industry in the county in terms of employment. The entire town of Standard and most of the town of Tuolumne were a direct result of the

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42 Johnston, Railroads of the Yosemite Valley, pp. 72, 172; Western Railroader, 36 (Nov.-Dec. 1973), pp. 3-5.

big mills located there. The cutting season in the mountains saw a regular influx of workers from the Central Valley and beyond, as regularly noted in the Sonora Banner. Often these men brought their families, making the seasonal population far more than the official total recorded by the census.[43] This also added to the passenger revenue of the Sierra, before busses and autos took most of the traffic.

To conclude, railroads were crucial to the development of the lumber industry in Toulumne County, as they were throughout the Sierra Nevada. As a direct result of the activities of the Sierra Railway promoters, two large lumber companies developed and prospered in the county. This in turn was reflected in the economic activities of most of the working force in the county. Without railroads, the entire development would have been impossible.

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43 See the Conclusions chapter for more discussion of population in Tuolumne County.

Water and Hydroelectricity

The railroad role in water-power and hydroelectric development in Tuolumne County before World War I was in many ways significantly different from its role in other industries of the time. For most, communication and transportation to and from the outside world were of central importance. Except for shipment of electrical generating equipment and some other supplies, most materials needed for the power development were available near the construction sites. What was needed was transportation from the sources to the sites.

Water-power development in Tuolumne County dated back to the early years of the Gold Rush. Hydraulic mining required large quantities of water, and deep mines used water power to run the hoists, pumps and compressors. A number of companies sprang up to supply the need, and ambitious schemes were launched in an attempt to secure sufficent quantities. The Columbia & Stanislaus Water Company drilled a 3000 foot tunnel through the ridge separating the Middle Fork of the Stanislaus River from the South Fork, allowing the diversion of water into their system on the South Fork. Never entirely successful, it was abandoned by 1860.[1]

The early water companies built a series of log crib dams to divert the water into ditch systems for distribution to the mines of the county. Other users, such as towns and fruit orchards, were also supplied with water from the companies, but the hydraulic gold mines were what supported the systems. Columbia today still bears the scars of the water's work.

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1 Union Democrat, p. 11

The outlawing of hydraulic mining in 1884 dealt a devastating blow to the mining industry in Tuolumne County (and throughout California) and the water systems built to supply it. Many ditches were abandoned, and companies closed down or consolidated. It was not until the revival of hard rock mining in the 1890s, and the subsequent developments for hydroelectric generation, that the water systems again began to expand.

Indeed, mining provided the impetus for hydroelectric development. The first generating plant in the county, Phoenix powerhouse, was built to supply electricity to the mines, replacing water and steam power. It was soon joined by others. The Tuolumne County Electric Power and Light Company was formed to supply electric power to the Columbia Marble Works, using water purchased from the Tuolumne County Water Company. Surplus power from this company was initially sold to light the city of Sonora, until bigger concerns supplanted it.[2]

The economics of electric power readily explain its acceptance by the industries of the county. Steam power was calculated at $25.00 per horsepower, water at $15.00 per horsepower. Electricity only cost $5.00 per horsepower.[3] But the early powerhouses did have limitations. Water storage capacity in the county was limited, and every year in late summer or fall the water companies ran out of water. Mines and other industries that used water power were forced to shut down or use alternatives like steam or gas engines. Power plants were no exception to the water shortage, and the shutdown were regularly noted in the

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2 Sonora Banner, Nov. 10, 1905.
3 Sonora Banner, July 25, 1902.

papers.[4]

Early water developments on the Stanislaus River had largely been built for local use with local ownership, but in 1906 a new project was started on the river by outside capitalists to provide electric power for San Francisco. The corporate evolution of this project, and the local companies absorbed by it, was very involved, and can only lightly be touched on here (see Figure 15).

In 1905 the Stanislaus Electric Power Company was formed in Maine by Eastern capitalists to operate a hydroelectric generation system on the Stanislaus River and a distribution system to the San Francisco Bay Area. Stock was controlled by a holding company, the Stanislaus Water Power Company. At the same time the Union Construction Company was incorporated in Maine by Sanderson & Porter, a New York based engineering and construction firm, to acquire and construct the Stanislaus River power system. Union Construction was tied to Stanislaus Electric Power and Stanislaus Water Power by contracts and other connections. Warren Gregory was appointed agent in California for all three companies.[5]

The first acquisition in Tuolumne County by Stanislaus Electric Power was the Stanislaus Water & Power Company, which had been formed in 1902 to consolidate the water rights that Beach Thompson had collected since 1893 on the Middle and South Forks of the Stanislaus as part of his hoped-for revival of the Santo Domingo hydraulic mine.[6] When it

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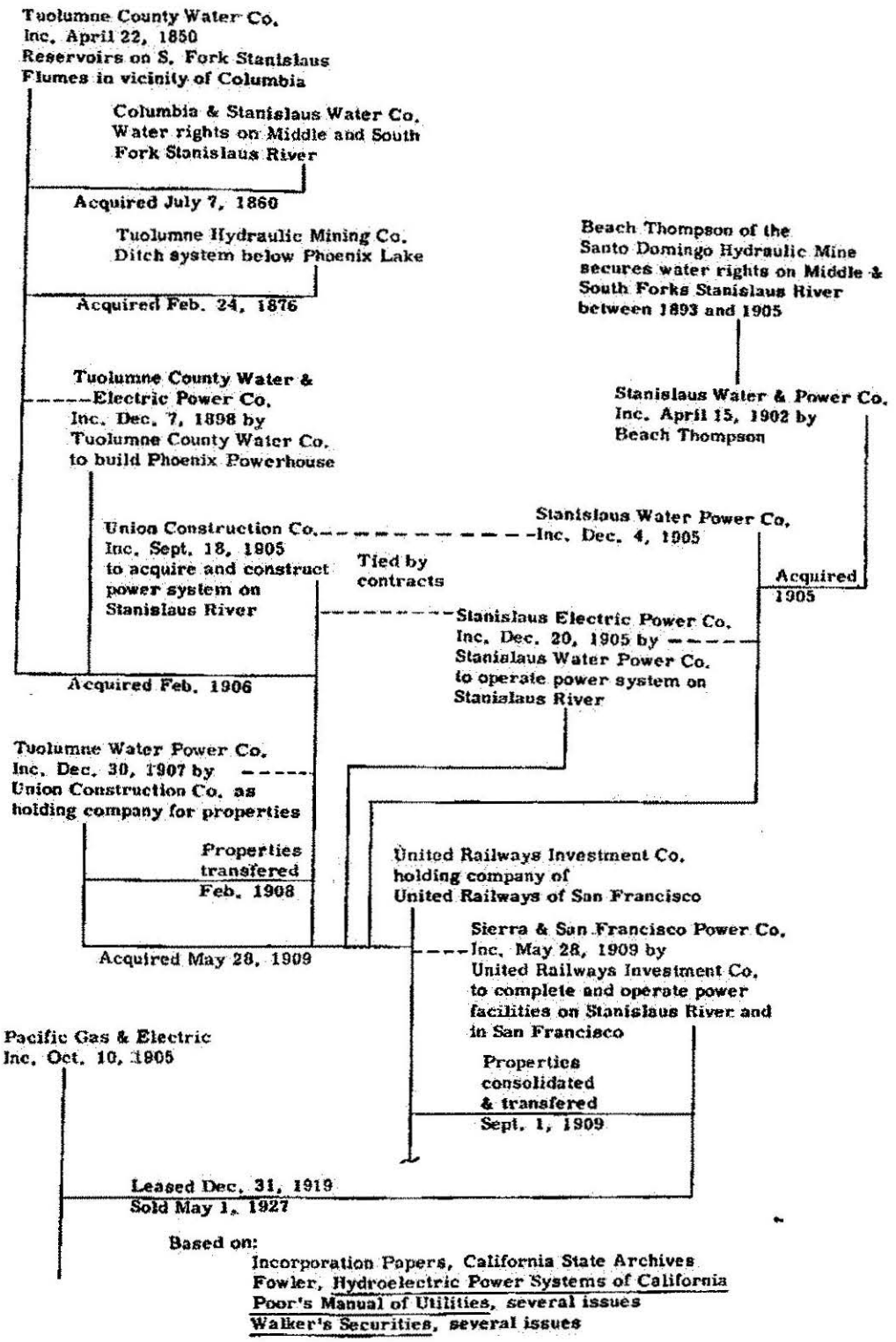
4 Sonora Banner, June 1898-Aug. 1918.
5 Incorporation Papers, CSA.
6 California Railroad Commission Valuation Working Papers of the Sierra & San Francisco Power Company, as of 1917, Public Utilities Commission collection, California State Archives, Sacramento, hereafter cited as S&SFPCo Valuation Papers, CSA.

Figure 15

CORPORATE TREE of STANISLAUS RIVER POWER COMPANIES



Based on:

Incorporation Papers, California State Archives
Fowler, Hydroelectric Power Systems of California
Poor's Manual of Utilities, several issues
Walker's Securities, several issues

became obvious that the Santo Domingo could never profitably be reopened, Thompson went looking for a buyer for his water rights.

In the meantime, Union Construction purchased the Tuolumne County Water Company and its subsidiary, the Tuolumne County Water & Electric Power Company. Tuolumne County Water was the oldest water company in the county, dating back to 1850. Tuolumne County Water & Electric Power had been incorporated in 1898 to construct the Phoenix powerhouse, completed in 1901.[7] This provided an already developed system with dams, ditches and electric generating capability.

The power development plan consisted of a series of dams in the upper mountains to store water and regulate the flow of the Middle and South Forks of the Stanislaus River. The South Fork portion was largely inherited from Tuolumne County Water Company. At Sand Bar Dam, on the Middle Fork, water was diverted into a flume that carried it high above the canyon to a holding reservoir, called Forebay. This fed high-pressure conduits for the powerhouse, located back on the Middle Fork at Camp 9, later named Stanislaus. The powerhouse was capable of generating 40,000 kilowatts of electricity. (Phoenix powerhouse, by comparison, could only generate 1,875 kilowatts.) Water from the South Fork could supply the Phoenix plant and the ditch systems or, through another diverting dam and the Philadelphia Ditch, could be transported to the Middle Fork above Sand Bar Dam.[8] This was the first phase in what was expected to be a larger development.

Work on the project was started in January of 1906, and proceeded rapidly, largely uneffected by the San Francisco earthquake

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7 Incorporation Papers, CSA; Sonora Banner, Nov. 29, 1901.
8 S&SFPCo Valuation Papers, CSA.

and fire in April of that year. As was the normal pattern in the high mountains, work stopped at the peak of winter, then resumed when the weather moderated. Good progress was made until October 1907, when the financial backing for the project collapsed.

The bonds of the Stanislaus Electric Power Company had been underwritten by the Knickerbocker Trust Company of New York. Well established in Eastern financial markets and involved in many promotions, the company had become overextended, and fell into bankruptcy that October, precipitating a national panic in the process. Work stopped on the Stanislaus project, then resumed on a more limited basis in January 1908, under New York bankruptcy court orders.[9]

Union Construction Company was not immediatly endangered by the collapse, and took steps to shore up its position. It incorporated the Tuolumne Water Power Company on December 30, 1907, and transfered its property holdings, including Tuolumne County Water and Tuolumne County Water and Electric Power, to the new company the following February (see Figure 16).[10]

Work continued on the project, and Knickerbocker Trust emerged from bankruptcy in March 1908. In October 1908 the first unit of the Stanislaus powerplant was placed in operation. Then in December it was announced that the Stanislaus Electric Power Company (and presumably all related companies) had been sold to the United Railways of San Francisco, operators of the streetcar system in that city.[11]

This transfer sounds simple enough, but as is typical in the

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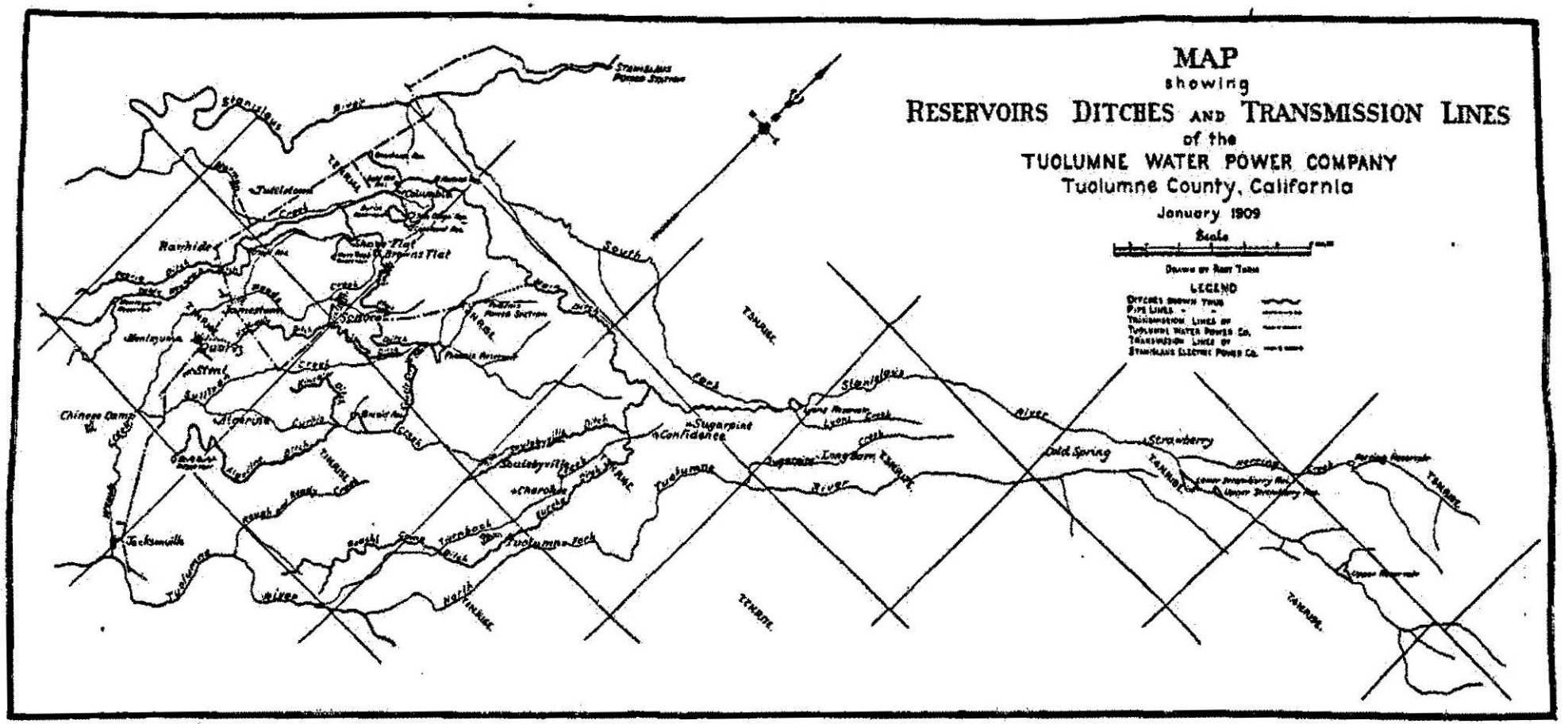
9 Sonora Banner, Oct. 25, 1907, Jan. 17, 1908.

10 Frederick Hall Fowler, Hydroelectric Power Systems of California, Water Supply Paper 493 (Washington, D.C.: United States Geological Survey, 1923), p. 287; Sonora Banner, Feb. 28, 1908.

11 Sonora Banner, Dec. 15, 1908.


MAP
showing
RESERVOIRS DITCHES AND TRANSMISSION LINES
of the
TUOLUMNE WATER POWER COMPANY
Tuolumne County, California
January 1909
Scale
LEGEND
Stanislaus River
Tuolumne River
Sugarpine
Confidence
Strawberry
Cold Spring
Jacksonville
Chinese Camp
Rawhide
Chaw-Pa-Tah
Big Oak Flat
Groveland
Tuttletown
Algerine
Jamestown
Sonora
Tuolumne
Long Barn
Tanbark
Cherokee
Turnback
Tuolumne Falls
Stanislaus Power System
Tuolumne Power System
Phoenix Reservoir
Lyons Reservoir
Spring Reservoir
Lower Strawberry Res.
Upper Strawberry Res.
Tanbark Reservoir
Tanbark Flat
Tanbark Creek
Tanbark Ditch
Tanbark Flume
Tanbark Tunnel
Tanbark Penstock
Tanbark Power House
Tanbark Reservoir
Tanbark Dam
Tanbark Intake
Tanbark Outlet
Tanbark Spillway
Tanbark Gate
Tanbark Valve
Tanbark Meter
Tanbark Pump
Tanbark Motor
Tanbark Generator
Tanbark Switchboard
Tanbark Transformer
Tanbark Substation
Tanbark Line
Tanbark Pole
Tanbark Insulator
Tanbark Crossarm
Tanbark Guy
Tanbark Anchor
Tanbark Conductor
Tanbark Ground
Tanbark Lightning Arrester
Tanbark Fuse
Tanbark Switch
Tanbark Relay
Tanbark Meter
Tanbark Recorder
Tanbark Operator
Tanbark Engineer
Tanbark Superintendent
Tanbark Foreman
Tanbark Laborer
Tanbark Teamster
Tanbark Blacksmith
Tanbark Carpenter
Tanbark Mason
Tanbark Painter
Tanbark Electrician
Tanbark Machinist
Tanbark Fireman
Tanbark Watchman
Tanbark Cook
Tanbark Waiter
Tanbark Maid
Tanbark Janitor
Tanbark Gardener
Tanbark Chauffeur
Tanbark Mechanic
Tanbark Helper
Tanbark Apprentice
Tanbark Student
Tanbark Teacher
Tanbark Principal
Tanbark Superintendent
Tanbark Board
Tanbark Trustee
Tanbark Clerk
Tanbark Treasurer
Tanbark Auditor
Tanbark Assessor
Tanbark Collector
Tanbark Sheriff
Tanbark Deputy
Tanbark Constable
Tanbark Marshal
Tanbark Judge
Tanbark Justice
Tanbark Court
Tanbark Jury
Tanbark Witness
Tanbark Attorney
Tanbark Defendant
Tanbark Plaintiff
Tanbark Verdict
Tanbark Judgment
Tanbark Appeal
Tanbark Supreme Court
Tanbark Circuit Court
Tanbark District Court
Tanbark Superior Court
Tanbark Municipal Court
Tanbark Justice Court
Tanbark Police Court
Tanbark Coroner
Tanbark Undertaker
Tanbark Cemetery
Tanbark Hearse
Tanbark Funeral
Tanbark Mourner
Tanbark Pallbearer
Tanbark Flower
Tanbark Wreath
Tanbark Casket
Tanbark Vault
Tanbark Grave
Tanbark Tombstone
Tanbark Epitaph
Tanbark Obituary
Tanbark Death
Tanbark Birth
Tanbark Marriage
Tanbark Divorce
Tanbark Alimony
Tanbark Child Support
Tanbark Custody
Tanbark Adoption
Tanbark Guardian
Tanbark Ward
Tanbark Minor
Tanbark Adult
Tanbark Citizen
Tanbark Voter
Tanbark Election
Tanbark Ballot
Tanbark Polling Place
Tanbark Precinct
Tanbark Ward
Tanbark Township
Tanbark County
Tanbark State
Tanbark Nation
Tanbark World
Tanbark Universe
Tanbark God
Tanbark Heaven
Tanbark Hell
Tanbark Purgatory
Tanbark Limbo
Tanbark Paradise
Tanbark Eden
Tanbark Garden
Tanbark Orchard
Tanbark Vineyard
Tanbark Farm
Tanbark Ranch
Tanbark Plantation
Tanbark Estate
Tanbark Manor
Tanbark Castle
Tanbark Palace
Tanbark Mansion
Tanbark House
Tanbark Home
Tanbark Cabin
Tanbark Shack
Tanbark Hut
Tanbark Tent
Tanbark Camp
Tanbark Campground
Tanbark Campfire
Tanbark Campsite
Tanbark Campsite
Tanbark Campsite

corporate world, there was much more involved. Gaining control of the project on the Stanislaus was just the first step. In February 1909, with the concent of Knickerbocker Trust and of Stanislaus Electric Power itself, Union Construction obtained a judgement against Stanislaus Electric Power for money due, forcing the company into bankruptcy.[12] This also forced Union Construction and its subsidiary, Tuolumne Water Power, into bankruptcy.

Under court order of foreclosure of the bond held by Knickerbocker Trust, Stanislaus Water Power Company, Stanislaus Electric Power Company, Union Construction Company, Tuolumne Water Power Company, and all their related and subsidiary companies were sold at auction at the main entrance of the Tuolumne County Courthouse on May 10, 1909.[13] The sole bidder was the United Railway Investment Company, holding company for the United Railways of San Francisco. Transfer of title took place May 28, 1909.[14]

This was not the end of the corporate reshuffle. On May 29, United Railway Investment incorporated the Sierra & San Francisco Power Company as a subsidiary. All holdings on the Stanislaus River were consolidated, along with United Railways power generating and distributing holdings in San Francisco, and on September 1, 1909 all were transfered to Sierra & San Francisco Power. Through all of this, Warren Gregory continued to play a central role, serving as a director of the newly-formed company.[15]

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12 Sonora Banner, Feb. 19, 1909 (two entries).

13 Sonora Banner, April 9, 1909.

14 H.D. Walker, Walker's Manual of California Securities (San Francisco: H.D. Walker, 1922); Walker's Manual of Pacific Coast Securities (San Francisco: Walker's Manual Inc., 1928), hereafter both cited as Walker's Securities.

15 Incorporation Papers, CSA; Walker's Securities, 1922; 1928.

Under Sierra & San Francisco Power the planned development on the Stanislaus was carried to completion, and additional facilities were built. The company began furnishing the full power requirements of the United Railways system in San Francisco on October 1, 1910. With the increased water storage capacity provided by the new dams, hydroelectric power was available year around, although seasonal variations in the amount of power available continued. Steam-powered generation plants located in San Francisco and other cities, as well as power purchases from other companies, were used to make up the shortfall (see Figure 17). On December 31, 1919, as part of a general reorganization of the United Railways properties, the Sierra & San Francisco Power Company was leased to the Pacific Gas & Electric Company for 15 years. Development on the Stanislaus continued under Pacific Gas & Electric, and in May 1927 the property was purchased outright from H.M. Byllesby & Company, successors to the United Railways, along with other properties that had been leased in 1919.[16]

The Stanislaus River electric development was a complex project involving construction of dams and reservoirs, flumes and ditches, powerhouses and transmission lines. Of these, railroads were directly involved in the construction of all but the transmission lines. Several isolated rail lines were constructed to transport rock and lumber from its sources to the sites where it was needed. Existing railroads were used to transport materials and supplies as far into the mountains as possible, before transfering the loads to wagons for the final distance.

The most distant part of the system, and one of the largest parts of the construction project, was Relief Dam, located on the Middle

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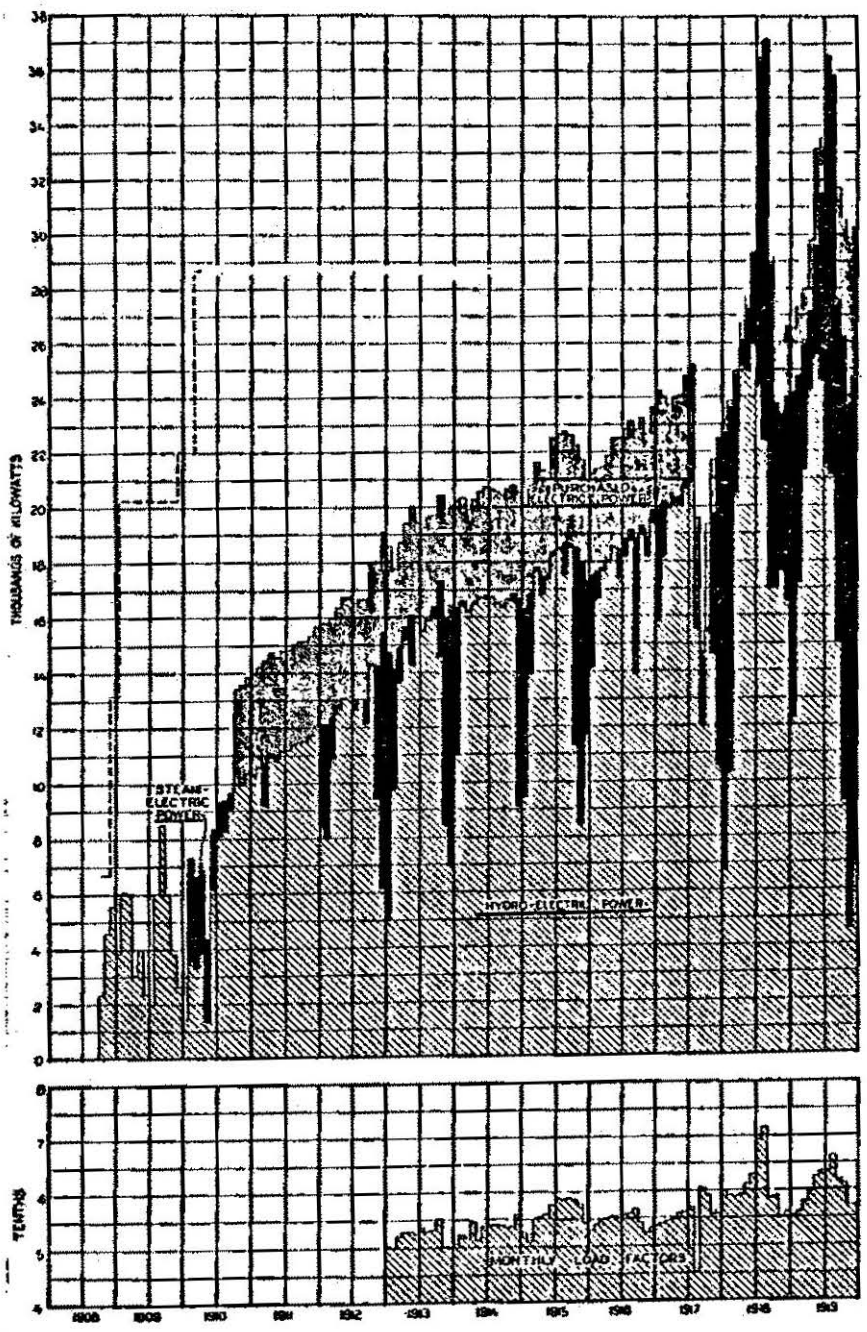
16 Walker's Securities, 1928; Fowler, p. 287.

Figure 17

ELECTRIC POWER SOURCES of the
SIERRA & SAN FRANCISCO POWER COMPANY

From: Fowler, Hydroelectric Power Systems of California



Sierra & San Francisco Power Co., mean monthly loads and load factors, 1908-1919.

Fork above Kennedy Meadows at 7200 feet. Constructed here was a 130 foot high rock fill dam with a concrete face. The reservoir thus formed held 4,876,000,000 gallons of water and served as the regulator for the system.[17]

Work on the dam started in January of 1906, and it was not completed until August of 1910.[18] It involved quarrying the rock and transporting it to the dam site using a 36 inch gauge railroad. Two small 0-4-0T industrial locomotives from the Vulcan Iron Works of Wilkes-Barre, Pennsylvania, were hauled to the site to pull the rock trains. Six large derricks were used to lift the rocks onto the cars at the quarry and off again at the dam site. A small sawmill was built to cut the lumber needed for forms, trestles and cribbing.[19]

A second major project was the construction of the diverting dam on the Middle Fork at Sand Bar and the flume to carry the water to Forebay, on the ridge above the powerhouse. This required large quantities of lumber, and a railroad network to collect the logs for the sawmill and to distribute the lumber to the construction camps along the route of the flume.

Accordingly, a substantial sawmill was constructed on the ridge at Camp 31, and the rails laid, again of 36 inch gauge. These lines were incorporated as the Stanislaus Railway, although the equipment was

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17 Fowler, p. 306. Union Democrat, p. 19. Poor's Manual of Public Utilities (annual), 1918 (New York, Poor's Manual Company), hereafter cited as Poor's Utilities.

18 Sonora Banner, Jan. 5, 1906, Aug. 5, 1910.

19 Construction photographs of the Stanislaus River hydroelectric project, private collections of Kyle K. Wyatt, Monterey, California, and Ron Core, Twain Harte, California, hereafter cited as construction photographs, KKW & RC; Locomotive builder construction lists, Railway & Locomotive Historical Society collection, William D. Edson, Potomac, Maryland; hereafter cited as Locomotive lists, R&LHS.

owned and operated by Union Construction directly. Between 1906 and 1907 three Shay geared locomotives were purchased from the Lima Locomotive Works of Lima, Ohio. Flat cars were acquired from the defunct Yosemite Short Line Railway and widened to 36 in gauge, and log trucks were purchased from the West Side Lumber Company. Additional flat cars were built in the company shops at Camp 31.[20]

The operation consisted of dragging cut logs to the loading stages with steam donkey engines, loading them onto the log trucks or flat cars, hauling them over the railroad to the sawmill and unloading them for sawing into lumber. The cut lumber was then loaded onto flat cars for delivery to the flume conatruction camps. The flume was largely located down in the canyon, and incline railways with special carriages had to be used to reach it. On the ridge crest four transfer stations were built, each with an incline running down to the flume and a construction camp. These were Sand Bar incline and inclines B, C and D.[21]

Lumber was offloaded at the transfer stations and stacked for reloading onto the incline carriages. It was then lowered down to the construction camps on the flume. Construction proceeded in both directions from the camps, and as the flume was built rails were laid for the incline carriages, allowing them to be wheeled to the end of construction. When completed, the rails on top of the flume were used by inspectors on small hand cars.[22]

Sand Bar diversion dam was constructed as a rock fill, wood crib

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20 Incorporation Papers, CSA; Construction photographs, KKW & RC; Locomotive lists, R&LHS.

21 Construction photographs, KKW & RC.

22 Construction photographs, KKW & RC.

dam with a planked face, about 20 feet high.[23] The headworks for the flume were of concrete and rubble with gates to control the flow of water. At the other end, Forebay dam was of earth fill construction. A train of dump cars pulled by one of the Vulcan industrial locomotives, filled by a steamshovel also from Vulcan, was used to build it. After finishing at Forebay, this engine was sent to Relief Dam.[24]

The dams and flume were sufficently complete by September 1908 for the water to be turned on to start filling Forebay reservoir. The first unit of the powerhouse was placed in operation in October, and finishing touches were completed on the dams and flume by the end of the year.[25] With the conclusion of these projects, the lumber mill and railroad equipment on the ridge became surplus, and were sold to the Standard Lumber Company in August of 1908.[26]

The powerhouse at Camp 9 was the remaining part of the system on the Middle Fork of the Stanislaus. A fifth incline was built from Forebay down to the powerhouse following the route of the high-pressure conduits. At the top these conduits were constructed of wood stave pipe, but where the pressure was greater, 66 inch steel pipes were used. The powerhouse contained four turbines with a total normal rating of 34,000 kilowatts. Through forced air ventilation this was increased to 40,000 kilowatts. The units were placed in service one at a time between October 1908 and March 1910.[27] Photos show that one of the Vulcan locomotives may have been used in the early stages of

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23 Union Democrat, p. 19.
24 Construction photographs, KKW & RC.
25 Tuolumne Independent, Sept. 20, 1908; Sonora Banner, Oct. 23, 1908; Fowler, p. 298.
26 Tuolumne Independent, Aug. 22, 1908.
27 Fowler, p. 298; Poor's Utilities, 1915.

construction at the powerhouse, probably in laying the foundation, before being sent to Relief Dam.

This completed the first phase of construction on the Middle Fork. The balance of the system consisted of four wood crib, rock fill dams on the South Fork (some dating back to the 1850s), Phoenix powerhouse, the ditch system and Phoenix Lake reservoir, located below (and predating) the powerhouse. In addition, the Philadelphia Ditch, also left over from the Gold Rush, could divert water from the South Fork to the Middle Fork above Sand Bar Dam.[28]

With the completion of the core system, the Sierra & San Francisco Power Company started improving and expanding their properties. In early 1912 work was begun on a dam near Strawberry, replacing one of the early wood crib dams. Like Relief Dam, this one was to be of rock fill and would hold up to 5,832,000,000 gallons of water.[29]

The contract was given to Willett & Burr, a West Coast construction firm. The faithful Vulcan locomotives were shipped to the site to haul rock trains. Supplies were hauled as far as Saints Rest on the Empire City Railway of Standard Lumber Company. In fact, Willett & Burr complained to the California Railroad Commission about the rates Standard Lumber charged them, but the Commission determined that the Empire City line was not a common carrier, and thus the Commission did not have juristiction.[30]

The dam proved more than Willett & Burr had bargained for, and in September 1913 Sierra & San Francisco Power took over the contract

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28 Fowler, p. 307; Poor's Utilities, 1915.
29 Fowler, p. 307; Poor's Utilities, 1915.
30 CRRC Orders, Mar. 21, 1913.

and continued the work themselves, until April 1914, when Chadwick & Sikes contracted to complete the dam. With four quarries supplying the steam trains with rock, the work continued. Finally, in November 1916, the new 165 foot high dam was completed.31

After the completion of the new Strawberry Dam in 1916, no more new projects were completed in Tuolumne County by the Sierra & San Francisco Power Company. New facilities were constructed on other parts of the system, and in 1918 an application was made to the California Railroad Commission for permission to issue a $1,000,000 bond to finance additional hydroelectric capacity on the Middle Fork of the Stanislaus, but events intervened before this could reach fruition. The 1919 lease to Pacific Gas & Electric had been put into effect before any new facilities were put in service in the county.32

After the Pacific Gas & Electric takeover, development continued. Spring Gap powerhouse started operations September 16, 1921. Located on the Middle Fork above Sand Bar, it took advantage of the fall of water diverted from the South Fork by the Philadelphia Ditch. In 1927 Pacific Gas & Electric also acquired the Tuolumne County Electric Power & Light Company near Columbia, which had been purchasing its water from the system since 1905. A new concrete Lyons Dam replaced the old wood crib structure in 1930, and Beardsley Dam was constructed on the Middle Fork above Sand Bar in 1957.33

As touched on briefly earlier, some materials and supplies did have to be hauled in to the construction camps. Material ranging from

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31 Sonora Banner, Sept. 5, 1913, Jan. 9, April 24, 1914; Fowler, p. 308.

32 Sonora Banner, March 22, 1918; Walker's Securities, 1922; 1928.

33 Fowler, p. 314; Walker's Securities, 1928; Gutohrlain, pp. 120, 133.

cement to food would come as far as it could by rail, then shift to wagons (and later trucks) for the final distance. The complaint by Willett & Burr against the Standard Lumber Company over rates charged on the Empire City Railway provides a good example of the utilization of rail transport when available. The construction firm was willing to ship over an unregulated industrial railroad at high rates, rather than face the alternative, although it might complain about those rates.

Perhaps the most unusual loads brought in were the generator sets, hauled in parts by the Sierra Railway to Angels Camp, and then by wagon to the powerhouse at Stanislaus. More common were pipe sections, shipped along the same route. For material going further into the mountains, a base was set up at Middle Camp on the Sugar Pine Railway, for transhipment on to the higher camps. Using the Mono Road and new roads built by the power company, supplies and even heavy machinery like the locomotives were hauled into the construction sites. But if there was a railroad available, it was used instead of the road.

In the 1920s, three dam projects showed the requirements of larger developments. Don Pedro Dam and Melones Dam, both built for Central Valley irrigation districts, each had a special branch built from the Sierra Railway to the construction site. The Hetch Hetchy project of the City of San Francisco went even further. A new 68 mile standard gauge railroad was built into the mountains from a junction with the Sierra Railway. In addition, several narrow gauge industrial lines were built at quarries and construction sites.[34]

These were much larger than most strictly hydroelectric

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34 For further information on the Hetch Hetchy project, see: Ted Wurm, Hetch Hetchy and its Dam Railroad (Berkeley: Howell-North, 1973).

developments of the day. Still, they point out the importance of railroads in construction at the time. While railroad connections to the outside world were not crucial to the success of the Stanislaus River project (similar projects were built in more remote locations at the time), they were very helpful, and were used wherever possible. Even an industrial line like the Empire City Railway, with its necessary transfer of materials from the standard gauge Sugar Pine Railway at Lyons Dam and its high rates, was utilized.

On rock fill dams like those at Strawberry and Relief, small industrial railroads were the most efficent way to transport the rock to where it was needed, even when the equipment had to be hauled over miles of dirt roads on wagons or dragged up mountains. The use of railroad equipment in hauling dirt at Forebay only reinforces the point.

Finally, the Stanislaus Railway seals the case. With no direct connection to another railroad, all the equipment again had to be hauled in by wagon, including a 20 ton locomotive. But for hauling logs to the sawmill, and distributing lumber and supplies from Sand Bar to Forebay, it still proved most efficient.

In summation, it seems unlikely that the electric project on the Stanislaus River would have, or could have, been built without the use of railroads directly supporting the construction sites, given the financial and technological conditions of the day. It does seem probable, however, that the system would have been built if the Sierra Railway had not existed, and the closest outside rail contact had been Oakdale or Milton on the Southern Pacific. The key to the project was transportation of building materials, which in this case were largely found on or near the construction sites and could be hauled by small isolated rail lines.

Other Industries

Agriculture

Between 1897 and 1917 Tuolumne County agriculture developed in a pattern unique among the adjacent Mother Lode counties. The reasons for this are not fully understood, nor are they the primary focus of this study, but several important factors are apparent, chiefly irrigation and the Sierra Railway. The areas of agriculture (livestock, hay and grain, and fruit) were effected differently by these factors.

Before the arrival of the Sierra Railway, agriculture in Tuolumne County was limited. Primarily, production was for local consumption; indeed most food supplies had to be imported. The major activity was in livestock raising, with a number of large ranches in the county. The stock, mostly cattle, were driven into the mountains in the spring to pasture, then returned to the foothills for the winter. Cattle not sold to local butcher shops were driven to Oakdale for shipment.[1]

Livestock remained the most important agricultural pursuit in the county, and one of the most profitable, after the coming of the railroad.[2] From the beginning more was exported than imported (see Appendix A), although some cattle were imported for local butcher shops.[3] In 1909 the 26 principal cattle companies accounted for most of the 27,218 cattle, valued at $476,482, in the county, along with 3,860 horses at $189,522, 3,948 hogs at $27,636, 335 mules at $33,500 and

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1 Dunn, 1915), pp. 21-2.
2 Dunn, pp 21-2.
3 Sonora Banner, Feb. 24, 1899.

lesser amounts of sheep, goats and donkeys.[4] In addition many animals from the Central Valley were driven to the mountain pastures each summer. Grazing rights for cattle could be purchased in Stanislaus National Forest lands, but sheep were not allowed.[5] Newspapers regularly noted the spring and fall dates when livestock were driven to and from the mountains.

Between 1915 and 1916 a major change occured in the cattle industry in the county (see Figure 18). Shipments of livestock increased dramatically, while shipments of hides and leather, indicative of major slaughter house activity, ceased altogether. While no direct statements have been found explaining this situation, two factors probably explain what happened. The first was World War I, then raging in Europe, which probably required live shipment from Tuolumne County to insure unspoiled meat in Europe.

The other factor is illustrated by the experience of the City of San Francisco while working on their Hetch Hetchy Dam project. The City found it was less expensive to purchase meat in San Francisco and have it expressed to Tuolumne County than it was to purchase it from local butchers, even though Tuolumne was a meat producer.[6] The local shops could not compete with the large establishments of the Central Valley and the Bay Area. Meat shipments into the county probably showed up as part of the sizable increase in less-than-carload (LCL) goods shipped into the county starting in 1915, as compared to the merchandise shipments of previous years (see Appendix A). With the domestic market for livestock largely superseded, and with the increased demand brought

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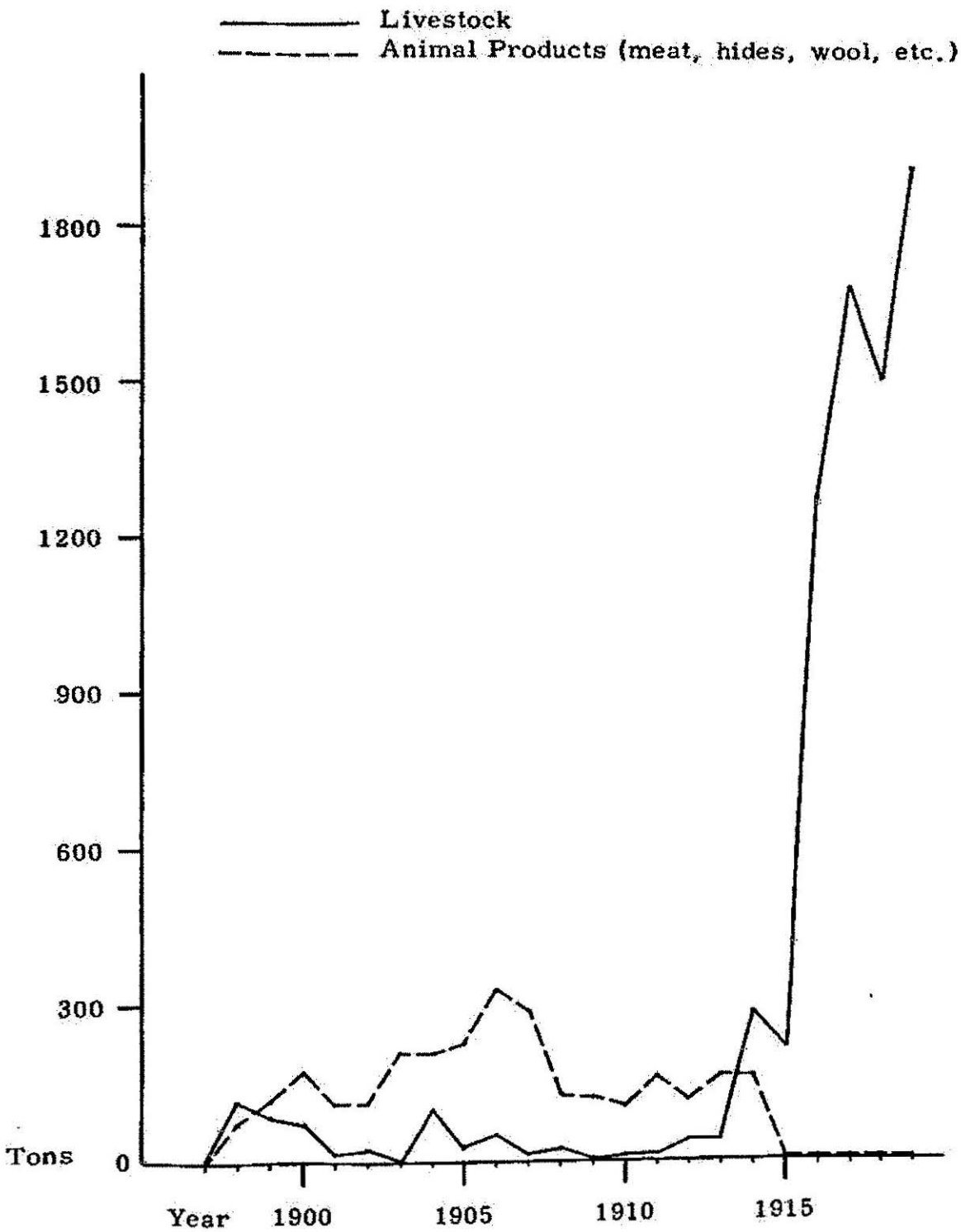
4 Union Democrat, p. 57.
5 Walker, p. 21.
6 Sonora Banner, Feb. 25, 1916.

Figure 18

SIERRA RAILWAY ORIGINATING SHIPMENTS of
LIVESTOCK and ANIMAL PRODUCTS

Based on: Appendix 1



on by the War, the ranchers started shipping their animals out over the railroad in quantity.

Dry-farming of oats, barley and wheat to produce hay was the other major agricultural activity before the coming of the Sierra Railway. The hay was sold locally and production could not meet demand, resulting in costly freight hauling of additional supplies from nearby areas, principally Stanislaus County.[7]

Hay and grain production in Tuolumne County remained almost exclusively for local consumption after the arrival of the Sierra Railway. A 1901 Local Rate Schedule for the Sierra tells the story. Grain shipments were from Occidental, Paulsell and Warnerville, all in Stanislaus County, for shipment to Oakdale and transfer to the Southern Pacific. Hay was shipped from Paulsell and Cooperstown to Chinese, Jamestown, Sonora and Carters (Tuolumne).[8] This pattern generally remained in effect throughout the period.[9] In fact, the first carload of wheat was not shipped out of Tuolumne County until February of 1918.[10]

Fruit, particularly apples, was one of the county's oldest agricultural products. Many trees were planted during the Gold Rush, irrigated by water from the placer mining ditches. With the mining slump in the 1870s followed by the outlawing of hydraulic mining in the 1880s, many of these water systems were abandoned, dealing a severe blow to the orchards.[11]

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7 Walker, p. 21.
8 Schedules, Bancroft.
9 Walker, p. 21.
10 Sonora Banner, Feb. 15, 1918.
11 Union Democrat, p. 4.

While never a large percentage of the Sierra's freight traffic, fruit production, most notably apples, developed into an important industry prior to the First World War. Even with the abandonment of the water systems and the concurrent decrease in county population, some orchards continued to produce. The first specific mention of apples being shipped out of Tuolumne County is in 1902,[12] and the Sierra was carrying fruit and vegetables from on line shippers starting in the 1898-1899 reporting year (see Appendix A). Also, fresh fruit was often shipped in small lots via Wells Fargo Express Company over the railroad, with records kept by them and only a rental charge paid to the Sierra for the space.

The Sierra took a special interest in apple cultivation. Coupled with increased availability of water (discussed below) and a developing export market, orchard plantings expanded dramatically.[13] For a number of years beginning in 1904 the Sierra paid $5.00 for each acre planted in fruit trees.[14] They also issued several pamphlets on apple culture and did other things to encourage the development. By 1909 about 37,150 apple trees were in the ground, with 22,000 bearing fruit. The yield that year was 2,740,000 pounds, valued at $82,200. At least 12,000 trees were less than 10 years old on the 12 major orchards in production, with more on the way.[15]

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12 Sonora Banner, Dec. 2, 1902.

13 Recent developments in refrigerated transportation to the East had also stimulated extensive fruit tree plantings throughout California at this time. While the Sierra appears not to have used refrigerator cars, the Central Valley and Bay Area buyers of Tuolumne County fruit undoubtedly shipped produce east this way.

14 Sonora Banner, April 22, 1904.

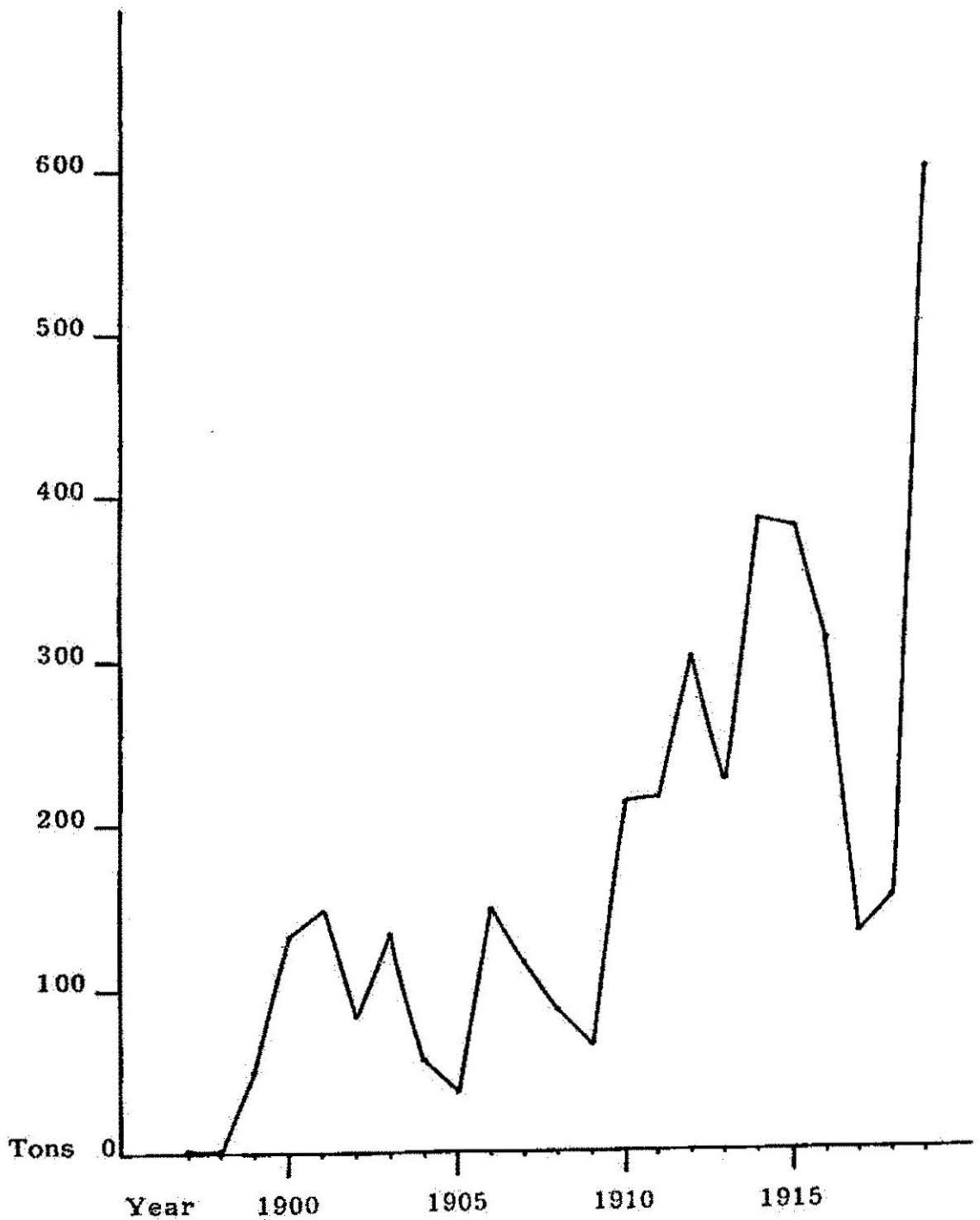
15 Union Democrat, pp. 15, 57.

Figure 19

SIERRA RAILWAY SHIPMENTS of

FRUITS and VEGETABLES ORIGINATING ON LINE

Based on: Annual reports to the Interstate Commerce Commission and the California Railroad Commission



In 1911 several Tuolumne County apple producers exhibited at the annual Watsonville Apple Exposition and won a number of awards, and San Francisco buyers were reportedly buying all the apples possible at good prices[16] The first carload shipment of apples was in 1913,[17] with many more to follow, encouraged by a major rate reduction by the Sierra Railway.[18] While seasonal totals varied with yearly conditions, the general trend continued upward (see Figure 19).

The mining revival of the 1890s resulted in the resurrection of some old water systems and the development of some new ones. Additionally, the major power project on the Stanislaus River begun by the Stanislaus Electric Power Company and continued by the Sierra & San Francisco Power Company (today part of Pacific Gas & Electric) increased the amount of water available for use in the county. (See also chapter above on Water and Hydroelectricity.) A side effect of these developments was to make more water available for irrigation.

Comparing statistics on farming and irrigation in Tuolumne County with the nearby counties of Amador, Calaveras and Maraposa highlights the differences of Tuolumne County development (see Figure 20). The three counties show a steady increase in total farm land between 1900 and 1920 while Tuolumne shows a decrease between 1900 and 1910 and only a small net increase by 1920, leaving it with the smallest total farming area of any of the four counties, despite Tuolumne having the largest total land area. By contrast, in irrigated lands Tuolumne shows a steady increase between 1900 and 1920, while the other three show a decrease by 1910 and only Calaveras shows an increase by 1920.

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16 Sonora Banner, Oct. 20, 1911, Feb. 9, 1912.
17 Dunn, p. 13.
18 Sonora Banner, Oct. 24, 1913.

Figure 20

FARM LAND & IRRIGATION

Counties		1900	1910	1920	1930
		Area in Farms - Acres			
	(Total area)	(% of total area)			
Tuolumne	(1,401,600)	204,758	193,072	220,730	206,615
		(14.6%)	(13.8%)	(15.7%)	(14.7%)
Calaveras	(657,280)	212,820	271,401	366,195	370,970
		(32.4%)	(41.3%)	(55.7%)	(56.4%)
Amador	(384,640)	214,024	291,730	312,106	313,719
		(55.6%)	(75.8%)	(81.1%)	(81.6%)
Maraposa	(936,320)	160,156	206,059	235,849	228,126
		(17.1%)	(22.0%)	(25.2%)	(24.4%)
		Land Irrigated - Acres			
		(% of farm land)			
Tuolumne		1,381	2,035	2,892	1,596
		(0.67%)	(1.07%)	(1.31%)	(0.77%)
Calaveras		1,476	1,275	2,859	1,996
		(0.69%)	(0.47%)	(0.78%)	(0.54%)
Amador		1,167	826	326	678
		(0.55%)	(0.28%)	(0.10%)	(0.22%)
Maraposa		574	376	66	26
		(0.36%)	(0.18%)	(0.03%)	(0.01%)

Based on: U.S. Census Data

By 1910 most of the water resources on the Stanislaus River were controlled by the Sierra & San Francisco Power Company. They provided water and power for the major developed areas of Tuolumne County. In 1910 the power company announced its intention to promote agriculture in the county.[19] Unfortunately water use in the county did not develop as rapidly as the power company wished, and when several Central Valley irrigation districts offered a lucrative deal, they sold the water there.

The situation came to a head in 1917. In March of that year a newspaper article called attention to the fact that relatively few in the county were making use of the water available when many could, and that this did not encourage continuance of the system. It also pointed out that water was being sold outside the county when it was worth more locally.[20]

As if to bear this out, in September of 1917 the power company ran short of water and reduced the flow in Tuolumne County ditches in order to meet its contract with the valley irrigation districts. This resulted in protests to the California Railroad Commission, who had jurisdiction over the case. Pending a decision, the water was ordered returned to the Tuolumne County ditches.[21] By 1918 the Sierra & San Francisco Power Company had a new contract with the irrigation districts, and Tuolumne County Supervisors had joined several farmers in suits against the power company over crop damage and in litigation over rates of water and extent of services.[22] Tuolumne County was passed its

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19 Sonora Banner, April 22, 1910.
20 Sonora Banner, March 2, 1917.
21 Sonora Banner, Sept. 7 (two entries), 28, 1917.
22 Sonora Banner, Feb. 22, April 5, 12, 1918.

peak in irrigation and had begun its decline.

It is difficult to asses the importance of railroads in the agricultural development of Tuolumne County. A study of the tonnage originating on the Sierra Railway (see Appendix A) is misleading in this case, since it includes a portion of Stanislaus County that is primarily agricultural. Most of the hay and grain shipments probably originated in this area, rather than in Tuolumne County. With the development of the valley irrigation districts, fruit trees were probably also planted here, although the majority of these shipments most likely did come from Tuolumne County at this time. The same holds true for cattle, with several important ranches around Cooperstown in Stanislaus County. Most cattle probably came from Toulumne County, but not all.

The livestock industry in Tuolumne would probably have developed along similar lines if the railroad had never been built to the county. The development of motor trucks just before and after World War I would have provided the transportation necessary to deliver fresh meat from Oakdale, shipped there from the slaughter houses of the Valley and the Bay Area by rail, to the towns of Tuolumne. Shipment of cattle could have continued from Oakdale as it had before the Sierra was built, with cattle drives from Tuolumne County.

Of all agricultural products, only in fruit do we find the presence of a railroad making a crucial difference. Without the source of rapid, inexpensive transportation to ship it out of the county to the markets of the valley and beyond, the apple industry could never have developed as it did. With its promotion of a traditional industry coinciding with the development of irrigation (also crucial), the railroad played a substantial role in making apple production an important activity in Tuolumne County.

Passenger Travel and Tourism

Railroads were the standard means of travel in the nineteenth and early twentieth centuries. Whether for business or pleasure, passengers tried to reduce the amount of stage travel necessary to reach their destination, even if it meant extra miles by rails. Tourist travel to natural wonders was a growing phenomenon at that time, and railroads actively promoted sites served by their lines; indeed some lines were built primarily to reach scenic locations such as Yosemite and Mount Tamalpias.

Road travel in the early years was a rough business, especially in mountainous areas like Tuolumne County. Choked with dust in the summer, the highways turned to seas of mud in the winter, effectively isolating many of the communities for weeks or more at a time. Only the most urgent traffic would face the muck. In addition, many of the roads were privately owned toll roads or had ferrys or bridges that one had to pay to cross. Operated under franchises from the counties, it was the only way these public works could be built in a time of small local governments with minimal income.

The Sonora-Mono Road provides a good example of how these toll roads came about. Planned as a free road to be built by the counties of Stanislaus, Tuolumne, Calaveras and Mono, only the first eight miles (Sonora to Middle Camp turnoff) were completed before the funds were exhausted. The balance of the road was constructed as a toll road.

The last franchise for the Sonora-Mono Road expired in 1900, and it became a part of the State Highway system in 1901, but this did not end its problems. In 1913 the Governor rejected badly needed funds for maintenance of the road and in 1915 an attempt was made in the

Legislature to have it declared abandoned,[23] all this occurring at a time of great expansion of State and County owned roads. Despite all, it survived to become the present State Highway 108.

Passenger traffic was an important part of the Sierra Railway's service in Tuolumne County before World War I. None of the other lines in the county provided any significant amount of passenger service, being devoted to hauling freight for specific industries, primarily lumber. But while the Sierra's traffic was sizable, the promoters of the line had entertained greater hopes. They dreamed of floods of tourists traveling over the line to Calaveras Big Trees and Yosemite Valley, but changing interests and alternate routes left them but a dribble.

The Sierra Railway promoters were not without justification in their dreams of tourist multitudes. No rail line came close to Yosemite in 1897 when the Sierra was being built, and the new line did offer the shortest stage coach ride over the Big Oak Flat toll road, an important consideration for any traveler. "Ho! for Yo Semite" read an advertising card printed when the line was only to Crimea House, west of Chinese Station,[24] and by mid September it had carried 300 to 400 travelers bound for the Valley.[25] The future looked good.

The flaw in the plan was the mainline railroads the Sierra connected with, neither of which wanted to promote a route that would split profits. The Southern Pacific had the Raymond Branch out of

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23 Sonora Banner, June 20, 1913, March 19, 1915, Sept. 29, Oct. 6, 1916.

24 Sierra Railway collection, California State Railroad Museum, Sacramento.

25 Sierra Railway correspondence, private collection of Richard Rosenquist, Saratoga, California.

Madera, connecting with the Wawona road from the south. Overnight Pullman service was offered from both San Francisco and Los Angeles.[26] The Santa Fe promoted a connection with a stage running from Merced over the Coulterville route.[27]

In an attempt to promote its route the Sierra shared expenses of an office in San Francisco with the Big Oak Flat & Yosemite Stage Company. When, after four years of trying, the stage company gave up the business in 1902, the Sierra was unable to find another operator for the route.[28] They finally had to settle for a connection at Coulterville with the stage running from Merced to Yosemite.

Like the Yosemite traffic, travel to the Calaveras Big Trees proved a disappointment. Through the 1890s the Big Trees was a more popular tourist attraction than Yosemite Valley. W.H. Crocker and Prince Andre Poniatowski, major backers of the Sierra, had married two sisters from the Sperry family of Stockton. Their uncle, James Sperry, owned the Big Trees and a hotel there for many years. His first attempt to get a railroad to the grove was in 1882 when he helped form the San Joaquin & Sierra Nevada Railroad, running east from Bracks Landing and Lodi. The major capitalist of the line, Frederick Birdsall, died in 1885 shortly after the line reached Valley Springs, and Southern Pacific acquired control of the line, ending Sperry's involvement and his hopes.[29]

With the encouragement of "Uncle Jim", the Sierra Railway promoters planned several lines to serve the Big Trees, but the closest

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26 Western Railroader, 35 (Jan. 1972) p. 5.
27 Sonora Banner, May 13, 1904.
28 Freshman correspondence, Bancroft.
29 Western Railroader, 19 (April 1956) pp. 3, 7.

they ever came was Angels Camp. After the 1890s the popularity of the grove declined and the Sierra could never justify construction that far into the mountains, although it showed up as a projected line on Sierra Railway maps for the next 25 years.[30]

The Sierra was not the only railroad promoted to carry tourists in Tuolumne County. In August of 1900 the logging railroad of the West Side Flume & Lumber Company (owned by Sierra Railway interests) was incorporated as the Hetch Hetchy & Yosemite Valleys Railroad of California and projected to serve the two valleys of its title, with a branch to the Calaveras Big Trees.[31] An attempt was made to have the Federal Government construct a wagon road from the end of the line to Hetch Hetchy and Yosemite.[32] In 1903 the lumber company and railroad were sold to Eastern lumbermen, and the tourist plans were quietly shelved.

In February 1903 the Standard Lumber Company (also controlled by Sierra Railway interests) incorporated the Sugar Pine Railway, planned to Calaveras Big Trees with a branch crossing the Sierra Nevada Mountains.[33] The line was leased to the Sierra Railway for operation (until 1908) but no regular passenger service was ever started and the line remained a lumber carrier. It was not until the 1950s, dreams of tourists long gone, that the logging line finally reached the Big Trees.

Perhaps the biggest tourist promotion of the Sierra Railway people was the Yosemite Short Line Railway, an extra narrow gauge line of 30 inch gauge (instead of the usual 36 inch narrow gauge) projected

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30 Timetables, Bancroft.
31 Incorporation Papers, CSA.
32 Sonora Banner, April 25, 1902.
33 Incorporation Papers, CSA.

from Jamestown to Yosemite with a branch to Hetch Hetchy, and crossing a large tract of timber controlled by T.S. Bullock of the Sierra. Following the stillborn Jamestown & Yosemite Railway (incorporated in December of 1904), the Yosemite Short Line was formed in June of 190534 with the Sierra Railway guaranteeing its bonds in return for the right to operate the line when complete.

Work was started in October and rushed forward. The reason for the hurry was the Yosemite Valley Railway, being built from Merced. This and several other projected lines, including one by the Southern Pacific, offered the prospect of competition before the Yosemite Short Line was even begun. Work continued until shortly after April 18, 1906.[35] As a result of business losses suffered by the promoters in the San Francisco earthquake and fire all work was stopped and, despite rumors and statements over the next five to ten years, was never started again. The Sierra carried the bonds until its own reorganization in 1937. As if to seal things, W.H. Crocker, banker for most of the Sierra Railway projects, became a director for the rival Yosemite Valley Railway in May of 1906.[36] That line was completed in 1907 and promptly superseded all other routes for rail travel to the valley.

To support the expected tourist trade, several hotels were built along the line of the Sierra Railway. The first, and by far the grandest, was the Hotel Nevills in Jamestown. Captain W.A. Nevills joined with T.S. Bullock and Andre Poniatowski on the condition that the Sierra not be extended beyond Jamestown for five years.[37] When

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34 Incorporation Papers, CSA.
35 Freshman Correspondence, Bancroft.
36 Johnston, Railroads of Yosemite Valley, p.14.
37 B.T. Booze scrapbook, Bancroft.

the railroad was extended to Sonora the next year, Nevills filed suit. Counter-suits followed and the final result was that the Sierra Railway became the landlord.[38] The company used it as office space and employee housing, and the hotel never showed a profit. On August 27, 1915 a fire started in the hotel, and within 40 minutes the building was a total loss.

In April of 1901, with the prospect of tourist travel on the Hetch Hetchy & Yosemite Valleys Railway, T.S. Bullock started construction of the Turnback Inn in Tuolomne. Built on a more modest scale than the Hotel Nevills, it was opened November 10, 1901.[39] Under several managers it proved a popular, and somewhat profitable, place until it, too, burned in 1918.

While not realizing its greater dreams, the Sierra was successful in carrying some tourist traffic. In the summertime the mountains above Sonora were popular with people fleeing the heat of the Central Valley or the fog of the Coast, as well as with local people from the Mother Lode towns. Phoenix Lake and Strawberry were popular destinations in the early years. By 1917 Oakland and Modesto were selecting camping sites for city residents along the Mono Road, and a resort was being built at the new lake at Pinecrest.[40] It was common for many families to take up residence in a mountain camp for most of the summer, returning to the lowlands in the fall. Most of these would have taken the train.

If tourist traffic was not all that was hoped for, there

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38 Sonora Banner, Feb. 10, Apr. 7, Oct. 6, Nov. 3, 1899, July 19, 1901.

39 Sonora Banner, Nov. 15, 1901.

40 Sonora Banner, July 1902, Apr. 14, 1905, Mar. 16, 30, 1917.

always the local traffic to and from the towns served by the railroad. Ridership and earnings rose steadily through 1904, then leveled out generally until 1915 (see Figure 21). After that year steadily increasing automobile, jitney and bus traffic cut the heart out of the Sierra's passenger traffic and its profitabilty. The main thing that kept it going was the mail and express business.

At its peak the Sierra was operating a passenger train from Tuolumne to Oakdale, with a connection at Jamestown to Angels Camp, for travelers to and from the Central Valley, and a through coach carried onward by the Southern Pacific through Stockton to San Francisco (actually the Oakland Mole and a ferry connection to the City). Another train ran from Sonora to Oakdale with a through coach carried by the Santa Fe to Stockton. Finally, there was a local train from Tuolumne to Jamestown, for a total of four including the Angels Camp connection.[41] This dropped to only the Tuolumne-Oakdale passenger train carrying the through coaches with a mixed train connection to Angels Camp by 1919.

In addition to the regular trains, special excursions were often operated. Some were for promotions, such as the special run in conjunction with the West Side Flume & Lumber Company's excursion and picnic at Nashton in May of 1900.[42] More commonly they were for special events in different communities, dances and sporting events being the most common. Baseball, football and women's basketball were popular. Toulumne, Sonora, Jamestown, Angels Camp and later Standard all had teams in at least one of these sports. If that was not enough competition, there were the valley towns; Oakdale, Turlock, Modesto.

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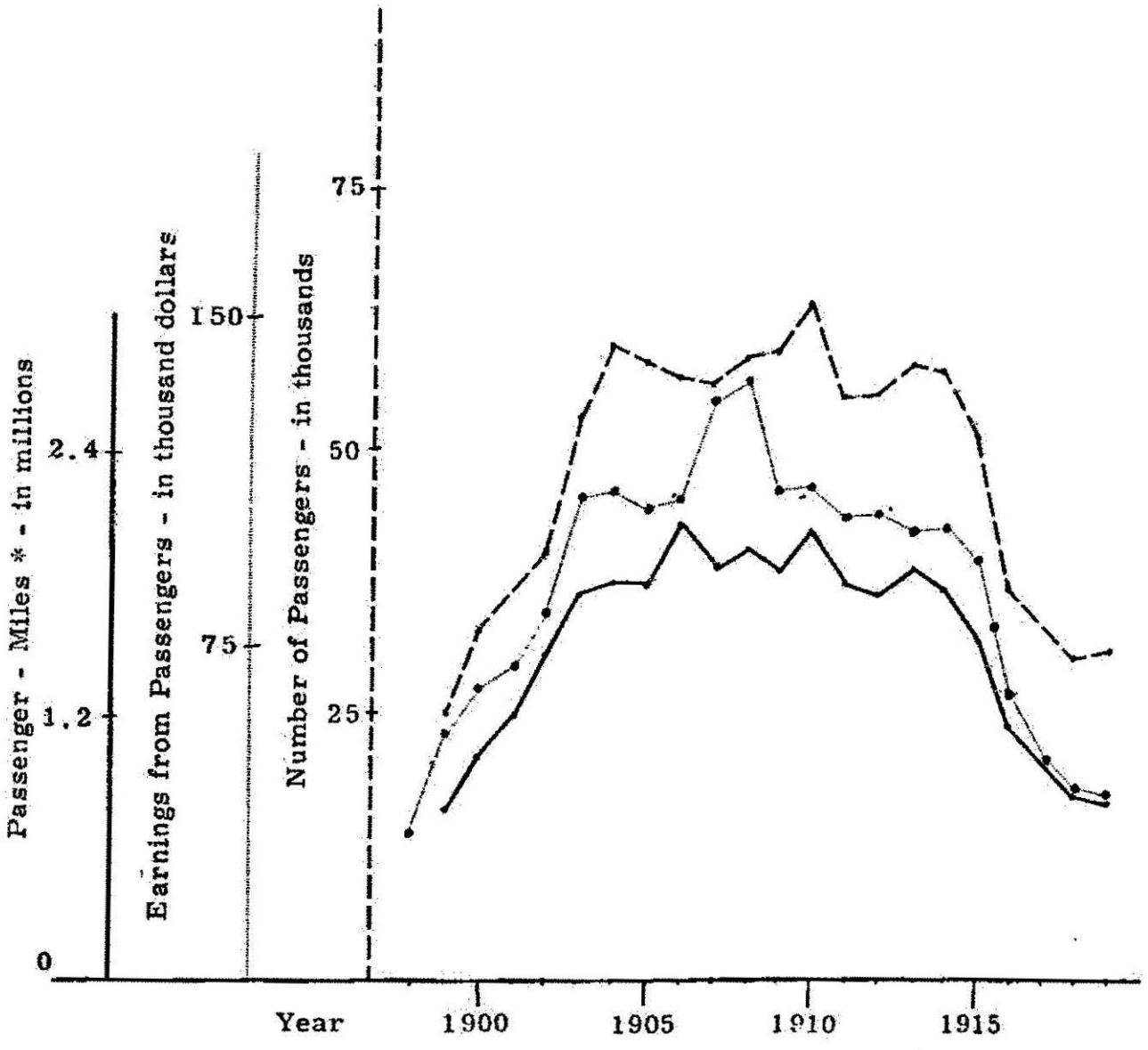
41 Timetables, Bancroft.
42 Sonora Banner, June 1, 1900.

Figure 21

SIERRA RAILWAY PASSENGER TRAFFIC

based on: Poor's Manual of Railroads (Annual)



* Passenger - Miles - Sum of the number of miles each passenger carried.

1917 - No information available for number of passengers or passenger - miles.

When a game was planned a train would bring the visiting team and their supporters to town and later take them home, usually after a following dance.[43] Special excursion cars, built without window glass to reduce breakage, were run. Alcohol was in common usage, at least by some segments of the crowd.

On May 1, 1914, it was announced that the first auto stage line between Stockton and Sonora had been established using a twelve-passenger Stanley Steamer.[44] This was the harbinger of things to come. By 1916 the Sierra Railway was lowering its fare to Stockton as a direct result of the competition.[45] By 1920, when the City of San Francisco was inquiring about the possibility of developing tourist traffic to Yosemite over the Hetch Hetchy Railroad (built by the City in 1917 from Rosasco on the Sierra Railway to Hetch Hetchy Dam site), C.N. Hamblin of the Sierra cited a recent example of the through coach which left Oakland with seven passengers, picked up an eighth at Tracy and a ninth at Stockton. The reason given for this poor showing was the slow time of Southern Pacific passenger trains and competition from jitneys and autos.[46]

For the first twenty years of the Sierra Railway, passenger traffic was an important portion of the overall services provided to Tuolumne County, and the railroad promoted it actively. Although the company tended to charge what the market would bear, riding in the steam car was far preferable to riding in a bouncy stage over a rough dusty

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43 Sonora Banner, June 1898-Aug. 1918.
44 Sonora Banner, May 1, 1914.
45 Sonora Banner, April 7, June 9, 1916; Board of Director's Minutes, May 24, 1916 meeting, Bancroft.
46 Hamblin Correspondence, to M.M. O'Shaughnessy, Jan. 16, 1920, Bancroft.

road. It was not until better highways and automobiles provided an alternative that people abandoned the train. Throughout the early part of the twentieth century the old toll roads were being acquired by counties and the state. New roads and bridges were built and the road network expanded.

In 1913 a new lateral from the State Highway was being surveyed from Knights Ferry to Keystone, and soon on to Sonora. By 1915 the Big Oak Flat Road was public, and work was being done to make the Tioga Road usable. The road from Oakdale to Knights Ferry was paved in 1917.[47] Road travel was far different than 1897 when the Sierra first entered Tuolumne County.

The importance of the Sierra Railway passenger service was in promoting communication. Mother Lode and mountain towns, lacking adequate transportation, tended to be rather isolated and provincial. By providing a means for mountain people to visit the outside world, and for others to visit the mountain towns, the Sierra brought the area it served more into the mainstream of California and the country. Such impact is difficult to quantify, but reading through the newspapers of the time one notices the broadening horizons of the people in the county, brought at least in part by the improved communications provided by the railroad. While the tourist throngs never materialized, the basic transportation provided by the Sierra was significant in the development of Tuolumne County.

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47 Sonora Banner, July 27, Aug. 22, 1913, July 23, Oct. 8, 1915, June 22, 1917.

Postlude

While improved roads and trucks reduced the importance of railroads to Tuolumne County after World War I, it by no means ended the need for rail transportation. In the 1920s the Sierra built two branch lines to the dam sites of Don Pedro and Melones. The Hetch Hetchy Railroad of the City of San Francisco, built in 1916 and '17, lasted until 1950, having been operated as a branch of the Sierra during the raising of the dam in the 1930s. The Sierra Railroad still runs to Standard today, although the Angels Branch and the extension to Tuolumne have been abandoned. Railroads continue to have a role in the economy of Tuolumne.

The 1920s could be called the decade of the big dams for Tuolumne County and its railroads. It began with San Francisco's water project on the Tuolumne River. The massive project involved not only the construction of a large dam in the Hetch Hetchy Valley inside Yosemite National Park, but also a series of dams and powerhouses on the Tuolumne and a long pipeline to deliver the water to the Bay Area.

To support the construction on the river, the City built the Hetch Hetchy Railroad from a junction with the Sierra at Rosasco's, later renamed Hetch Hetchy Junction. (The junction on the Sierra for the line to Don Pedro Dam was later named Rosasco.) Through February 1925 the line operated as a common carrier railroad, primarily hauling material for the water project. When construction ended in the mountains, the locomotives were sold and the line operated with small gasoline railbusses and locomotives for maintenence of the facilities and any freight that needed to be hauled in.

When San Francisco decided to increase the height of the dam at

Hetch Hetchy in in 1934, the Sierra received a contract to operate the Hetch Hetchy line as a branch. After complete rehabilitation, the Sierra started operating steam trains in May 1935. For the next three years heavy freight trains ran again over the line.

After the dam raising was completed in 1938, the Hetch Hetchy returned to the gas railcars and locomotives. The line was kept in part with the expectation that it would be needed for further expansion of the system in the mountains. By 1949 highways in the area had improved sufficiently that the railroad was no longer needed. By early 1950 it had been torn up for scrap. Some remnants remain. Four locomotives were saved by later owners and are now on display, one at El Portal in the National Park's rail museum. Also at El Portal is one of the railbusses, saved by a railfan after the line was scrapped.[1]

In 1920 work began on another dam project on the Tuolumne River, the Don Pedro Dam of the Turlock and Modesto Irrigation Districts. Consideration had been given to operating a narrow gauge railroad from the Central Valley or a standard gauge line from a junction with the Sierra, but the final decision was to have the Sierra build and operate a branch to the damsite. This was completed in July 1921, and dam construction began.

The Atlas Branch (also called the Orange Blossom Branch) was built to a gravel quarry on the Stanislaus River near Oakdale, and 40 steel hopper cars were purchased by the Districts to haul material to Don Pedro. These were later turned over to the Sierra, as part of the contract. Work continued through 1922 and '23, and was finished in

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1 For a more detailed look at the Hetch Hetchy project, see: Wurm, Hetch Hetchy and its Dam Railroad , on which the above is based.

1924. With its completion, the branch was removed and the hopper cars, being no longer needed, were sold to a line in Mexico.[2]

Following the Don Pedro project, the even larger Melones Dam project on the Stanislaus River was started in 1925, funded by the Oakdale and South San Joaquin Irrigation Districts. Again the Sierra built a branch to near the damsite, but this time the Districts operated their own geared locomotive to take the cars down the last steep grade.[3] The Districts purchased 80 hopper cars, again to be turned over to the Sierra at the end of the project, for the material haul from Atlas. Construction proceeded at a steady pace, and by 1929 the job was completed.[4]

On the Sierra Railway lumber shipments continued to dominate the freight traffic in the 1920s, with the exception of the dam traffic for the three projects. Passenger trains had been cut back to one per day, with a mixed train to Angels Camp. New locomotives were purchased to handle the dam traffic and make overall operations more efficient. The closure of the lumber mills in the depression, coinciding with the end of the dam traffic, hurt the Sierra, and the company went into bankruptcy in 1932.

W.H. Crocker and the other bond holders organized the Sierra Railroad Company on July 9, 1935, and assumed operation of the Sierra

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2 Hamblin Correspondence and Legal and Financial Material, Bancroft; Don Pedro Dam Railroad Profile, Sierra Railway collection, California State Railroad Museum; Deane, p. 137; Sierra Railway material, private collection of Ron Core.

3 This locomotive, from Davies-Johnson Lumber Company, may have been received in trade for Sierra locomotive number 26.

4 Hamblin Correspondence and Legal and Financial Material, Bancroft; Ron Core collection; Deane, 138-40; Correspondence between the author and Doug Richter, Western railroad authority, between Oct. 1982 and March 1984.

Railway on May 31, 1937. The Angels Branch had been abandoned in 1935, and the last passenger train ran in 1938. Both West Side and Pickering had been reorganized, and lumber shipments were again filling trains. The operation of the Hetch Hetchy Railroad had also helped carry the Sierra through the depression.5

The movies "discovered" the Sierra as early as 1919, and by the late 1930s a number of films had been shot on the line. This continued after the War, and special equipment was set aside for the "movie train". The railroad converted to diesels in 1955, but several steamers were retained. In the early 1970s a steam tourist operation was started on the Sierra and continued through 1979, when reduced passenger traffic associated with the "gas crisis" resulted in its discontinuance. A short time later the railroad was sold by the Crocker interests, ending an involvement dating to the beginning of the line.

The Jamestown shop facilities were sold to the California State Parks in 1982 for continued operation of the tourist trains (the diesel shops had long since been moved to Oakdale), and the freight operation was purchased by Silverfoot, Incorporated. Today most lumber products are shipped by truck, and little freight moves over the Sierra. Still, several trains per week serve the line and haul what traffic there is. The State Parks contracted with the Pacific Locomotive Association, a San Francisco railfan organization, to operate the tourist trains from Jamestown, and at this writing the passenger cars are running again. With the lumber industry in question in the county, tourists are becoming the new dominant industry in a way the originators of the line

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5 Hamblin Correspondence, Taylor Correspondence, Legal and Financial Material, Circular Letters, Clipping File, Timetables, Bancroft; Incorporation Papers, CSA; Gutohrlein, p. 17.

would never have dreamed of, and the railroad is still playing an important role, attracting people to the county.6

6 Larry Jensen, The Movie Railroads (Burbank, California: Darwin Publications, 1981), pp. 14-69; Gutohrlein, p. 18; Sierra Railroad materials, private collection of Kyle K. Wyatt.

Conclusions

The role of railroads in various industries in Tuolumne County has been discussed in the chapters above. The importance of these industries and the railroads to the overall economy of Tuolumne will now be considered.

To review the conclusions reached on the importance of railroads to the different industries, it was shown that they had relatively little impact on the gold mining industry, for which transportation costs were a small part of total operating expenses. Marble and lime, on the other hand, were made feasible and competitive by the availability of rail transportation, although development might have occurred without it. Lumber was a clear-cut case: rail transportation from the woods to the mill made large operations possible in the Sierra Nevada, and rail shipment was the preferred mode from the mill to the markets. On the Stanislaus power development, the construction company would have used small construction railroads even if the Sierra Railway had not existed. The Sierra played an important role in the agricultural developments in the county, particularly with apples, but water was more important, and the industry might have developed without the railroad. Finally, the attempt to develop tourist traffic to Yosemite showed it required more than just a slightly shorter rail route to attract passengers.

The early twentieth century was a time of change for the industries of Tuolumne County. Gold mining was declining, replaced by lumber, and to a lesser extent by marble and lime, as the major employers in the county. Agriculture, particularly in fruit, was experiencing significant growth, although stock raising was

far-and-awaythe dominant agricultural activity. Throughout the Sierra Nevada Region major economic changes were occurring, but many variables controlled the outcome. Comparing Tuolumne to nearby counties it is clear that the railroad provided a major impetus to certain industries, but that its mere presence was insufficient to bring these industries to the fore. It took people with money and knowledge to exploit the opportunity and to develop new industries.

Amador, Calaveras and Mariposa counties provide good examples of how the simple existence of a railroad was insufficient to bring an industry into existence. As previously mentioned, it was not until 1940 that a major lumber mill was constructed along the Amador Central Railroad, a line completed in 1909. Likewise, a large sawmill was never constructed near Angels Camp, despite the Sierra's branchline, and the mountains remained largely unexploited until truck logging began. The Yosemite Valley Railroad in Mariposa County actively sought out lumbermen to develop the timber along their line. And in Tuolumne, it was the promoters of the Sierra, themselves, that started the two large lumber companies there.[1]

The transition from mining to lumbering in Tuolumne did not necessarily mean that miners became loggers. Many of the lumberjacks lived in the Central Valley and only came to the county during the logging season. Some of these with families would bring them to the mountains, but many would not. Even many foremen and woods bosses came from out of the county. Frequently these men would change employers from year to year. The local newspapers regularly noted the spring

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1 Johnston, Railroads of the Yosemite Valley, p. 125.

arrival and fall departure of the laborers.2

Workers at the box and sash and door factories, on the other hand, tended to be local residents, as the work was year-around. This was also true of the sawmills located at lower elevations, specifically the big mills at Standard and Tuolumne. This and the limestone industries, plus agriculture, provided the economic base for the population as gold mining declined. The result was a population peak in 1900, coinciding with the mining boom, followed by a decline throughout the first 20 years of the century (see Figure 22).

The decreasing population coupled with the seasonal influx of workers who were single or unaccompanied by their families undoubtedly had a profound impact on the social structure of Tuolumne's society. This line of research warrants further study. U.S. Census reports, while detailed in their coverage of metropolitan areas, are notably sparse when it comes to the rural mountain counties of the Sierra Nevada. Work directly from the census rolls would likely prove more profitable. Gold mining was heavily unionized, and labor disputes were not uncommon, although they were usually resolved within a day or so. Newspapers provide ready information on this subject. The unionization of the lumber industry is less clear locally, although national figures are available in U.S. government publications of historical statistics.

Despite the declining population, records of total tonnage of freight originating on the Sierra Railway, and therefore largely produced in and shipped from Tuolumne County, show a general increase, and a high degree of statistical correlation to the overall U.S. gross national product between 1904 (the completion of the Angels Branch) and

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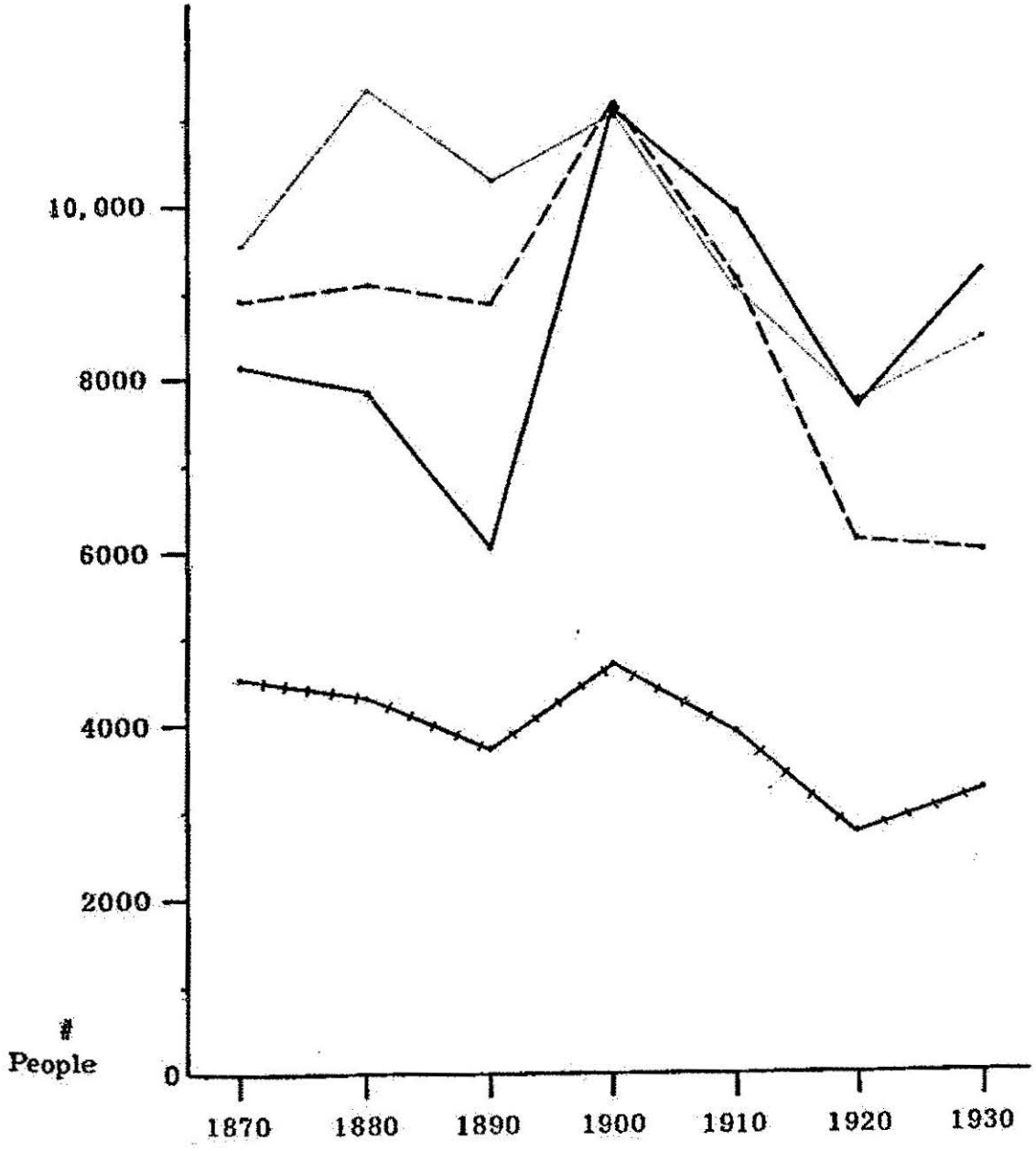
2 Sonora Banner, 1900-1918.

Figure 22

COUNTY POPULATIONS

Based on: U. S. Census Reports

Amador Calaveras Tuolumne Maraposa



1916 (just before the dislocations associated with World War I), as shown in Figure 23. There is a similar correlation with the wholesale price index, both for all commodities and for building materials during the same years (see Figure 24). This shows that the Tuolumne County economy, as represented by shipments from the county, was very closely tied to the overall national economy, as would be expected when the major products are building materials of wood and stone. It can therefore be concluded that fluctuation in the Tuolumne economy were shaped more by national trends than by local causes. This applies to the major companies in the county and their employment needs, and should not be confused with the social dislocations described above.

The close tie between Tuolumne County and the national economy corresponds with the increased communication and interchange facilitated by the railroad, as discussed in the chapter on passenger travel. Economic and social integration generally go hand-in-hand, and this seems to be the case in Tuolumne. This finding runs counter to the general perception of Mother Lode counties in general and Tuolumne County in particular as being backward and isolated, and out of touch with national trends. While this may be true in areas of the county not served by the Sierra, it does not characterize the northern part of the county that was its political, economic and population center. The influence of later developments on this situation is unknown, and may be worth further investigation.

The wholesale price indexes (Figure 24) also show the dramatic increase of costs after 1917 that hurt the gold mining industry so much, accentuating the decline it was already experiencing. Here, again, is national trends effecting the local situation. These escalating costs, combined with the closures resulting from the restrictions during World

Figure 23

FREIGHT ORIGINATING on the SIERRA RAILWAY

vs. U.S. GROSS NATIONAL PRODUCT

Based on: Appendix 1 and Historical Statistics of the United States

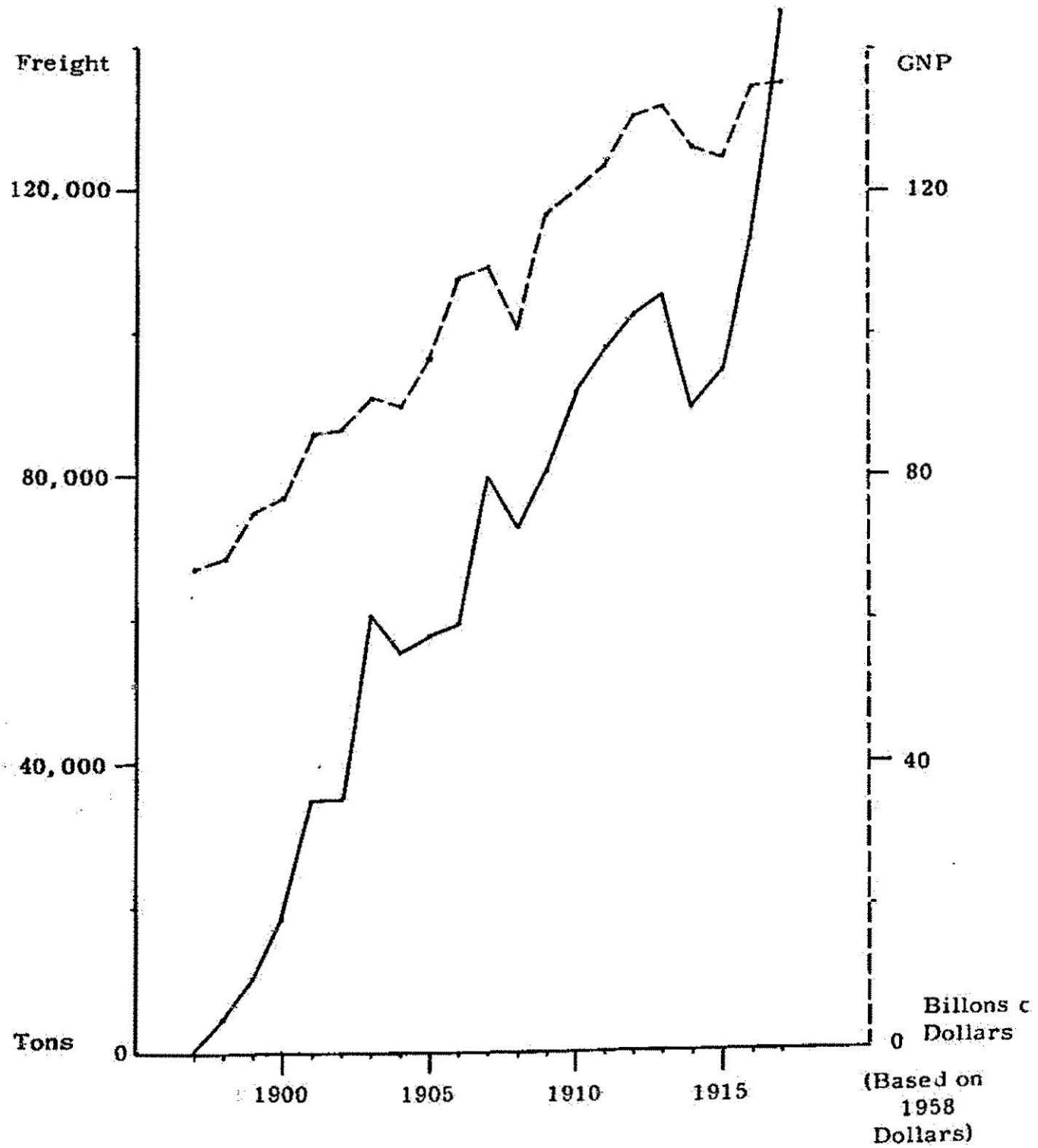
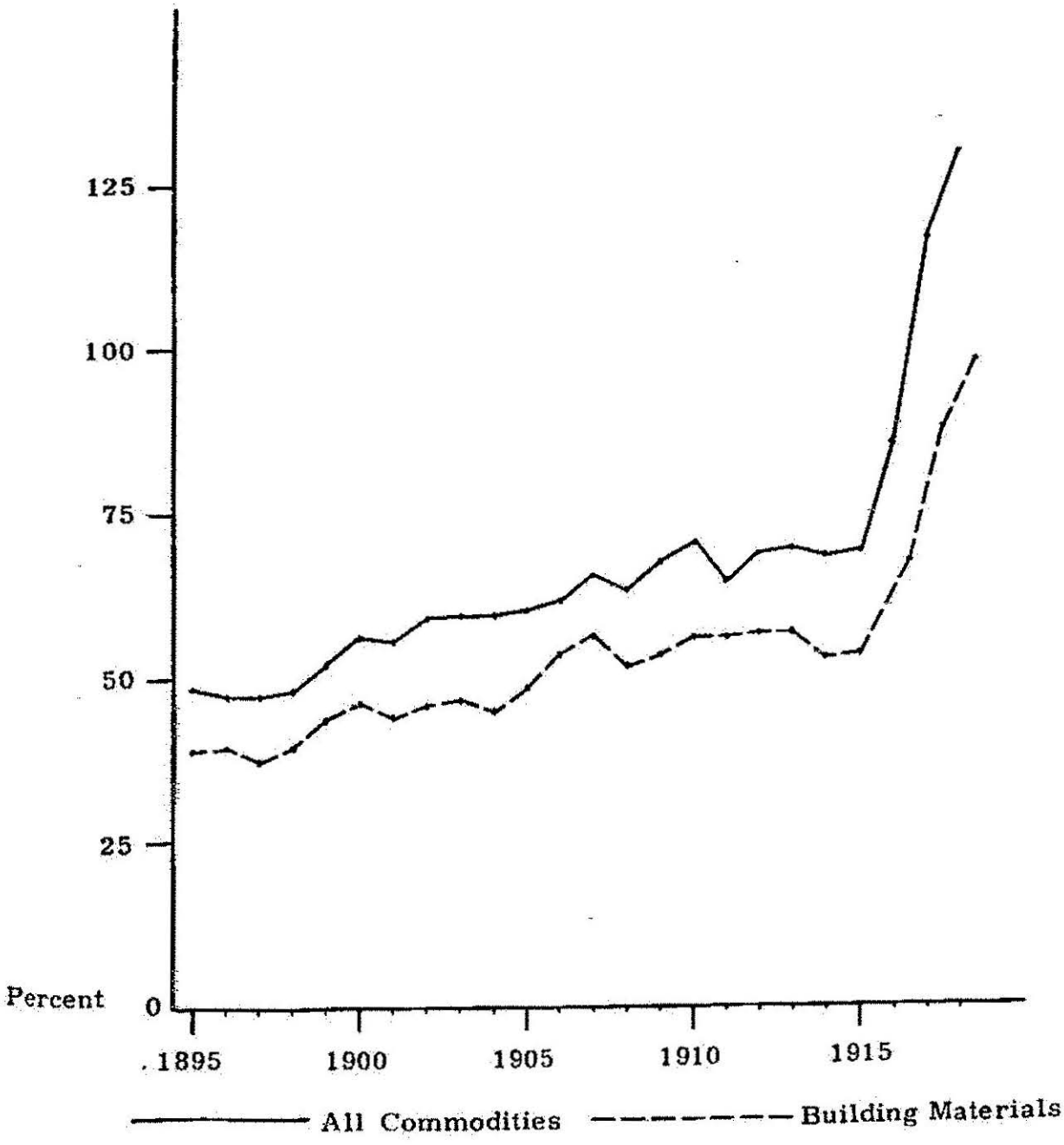


Figure 24

WHOLESALE PRICE INDEX - Base: 1926=100%

Based on: Historical Statistics of the United States



War I, brought reverses that the gold mines in Tuolumne County, and much of the rest of the state, never recovered from. While other industries were able to compensate by passing cost increases on to customers, the price of gold was fixed by the government and did not increase until the 1930s.

Total tonnage originating on the Sierra Railway is not an effective indicator of the Tuolumne economy in the 1920s because of the large shipments associated with construction of the two irrigation dams, tonnage not related to the local economy in a major way, for reasons described below. Additionally, the three government indicators show a far lower degree of correlation between themselves, no doubt symptomatic of the chaotic economic conditions in the nation at the time. The result is a poorer basis for comparison.

Statistical analysis failed to find any significant correlation between Sierra Railway tonnage figures and the dates of construction on the Stanislaus River project. Additional evidence based on newspaper accounts supports this conclusion. This is not surprising. The project was financed by outside sources and largely employed temporary laborers from outside the county. Other than providing employment to some local residents, the major local impact would be in those businesses providing goods and services to workers in their time off. These would not be expected to show a major influence on the economic indicators available for analysis, and particularly would not have a major impact on the railroads in the county. Likewise, the construction railroads of the Stanislaus project had no lasting impact on Tuolumne's economy, having been built and used strictly to support construction.

The improvements to the local water system resulting from construction of the Stanislaus River project did have local

ramifications, resulting from the increased availability of water and electric power. This provided significant, although not critical, savings to the other industries of the county, such as lumbering and mining. It also helped prompt the development of a fresh fruit industry in the county, reflected in increased shipments on the Sierra. The role of railroads in these developments, and the impact on the county, has been adequately explained in previous chapters, and the overall importance should be readily apparent, even though not major, in overall county development.

Finally, the reliance of the major industries in Tuolumne County on railroad transportation during the period of study points to the importance of the rail companies to the economy of the county, especially with the decline of the gold industry. This conclusion comes as no surprise, since the national importance of rail transportation at this time has long been recognized. Of greater interest is the role and importance of railroads to the different individual industries of the county, and how these industries then influenced the economy of the county as a whole. Also important is the role of railroads in integrating the county economy into the national economy, a connection often overlooked in the study of railroad history.

This study has focused on the business and economic history associated with railroads in Tuolumne County, and has but lightly touched on the social ramifications of the events recorded. Social factors undoubtedly reflected on the trends observed here, and that interaction is worth researching further. Similarly, both the automobile and the Great Depression exercised great influence on developments of the 1920s and later, producing results that may be

strikingly different from those found in the more developed areas of the state. The census report for 1930 shows a population increase for Tuolumne, Amador and Mariposa Counties after two decades of decline, but in Calaveras County the decline continued. It would be interesting to see what part the economic development spurred by railroads played in this.

It is hoped that other lines of inquire will be suggested by parts of this study, and that sources and methods have been provided that will aid this work. Several sources not used to a great extent, due to time constraints, were located and have been noted in the bibliography. The content and extent of these collections is not fully known, but it is expected that significant information is contained in them.

Tuolumne County has proven to be an excellent location to study the effects of railroads on economic development because of the limited alternatives to rail transportation in the county and because the Sierra Railway derived nearly all of its traffic from the county. This later fact has allowed statistics for the Sierra to be applied directly to the county in most cases. With the abandonment of the Angels Branch in the 1930s, the Sierra is now almost totally dependent on Tuolumne County for its livelyhood. Coupled with improved statistical data from recent census reports and other sources, a continuation of this study should yield interesting and significant results on the continuing and evolving role of railroads in Tuolumne and the Mother Lode in general.

APPENDIXES

Annual Report to / Year	ICC*	Report	June	1898	CRRC*	Report	June	1899	ICC	Report	June	1900	ICC	Report	June	1901	ICC	Report	June	1902	CRRC	Report	June
	O*	R*	T*	P*	O	R	T	P	O	R	T	P	O	R	T	P	O	R	T	P	O	R	T
AGRICULTURE (Total)																							
Grain	773	1095	1868	10.10	1406	1199	2605	7.14	3621	711	4332	9.91	3115	65	3180	5.94	3118	234	3352	3.41	2867	76	2943
Flour	304	391	695	3.76	615	642	1257	3.45	826	572	1398	3.20	836	597	1433	2.69	764	568	1332	2.51	967	849	1816
Other Mill Products	102	128	230	1.26	187	442	629	1.73	655	439	1094	2.50	2012	600	2612	4.88	2057	767	2824	4.55	2529	1233	3762
Hay	890	604	1494	8.08	1985	916	2901	7.98	1952	193	2145	4.91	402	31	433	0.81	1064	137	1201	1.95	576	87	663
Fruit & Vegetables		504	504	2.73	50	1145	1195	3.28	131	1087	1281	2.79	148	1051	1199	2.23	82	965	1047	1.69	132	1486	1618
ANIMALS (Total)																							
Livestock	120	22	142	0.78	96	220	316	0.86	77	125	202	0.46	14	65	79	0.14	20	6	26	0.04			
Dressed Meat		85	85	0.47	10	258	268	0.73	6	20	26	0.06	6	35	41	0.00		33	33	0.05	60	82	142
Other Packinghouse Products						39	39	0.01															
Poultry, Game & Fish																							
Wool	22		22	0.12	4		4	0.00	32		32	0.07					13		13	0.02	24		24
Hides & Leather	60		60	0.32	115		115	3.16	106		106	0.24	107		107	0.22	109		109	0.16	124		124
Bones, Hoofs & Horns									12		12	0.00	11		11	0.02	3		3	0.01			
Other Animal Products																							
MINES (Total)																							
Anthracite Coal																							
Bituminus Coal		354	354	1.91		4603	4603	12.64	10	2887	2897	6.63	17	1325	1342	2.08	91	994	1085	1.75	10	984	994
Coke		43	43	0.23		94	94	0.25		73	73	0.17		69	69	0.13		115	115	0.18	10	188	198
Ores	2051		2051	11.08	3889		3889	10.70	5512		5512	12.61	4797		4797	8.95	3452		3452	5.57	7759	24	7783
Stone, Sand, Etc.(+ Marble)						287	287	0.79					207		207	0.40	78	21	99	0.15	813	1	814
Marble									452	5	457	1.04											
Salt		155	155			259	259	0.71	24	219	243	0.57	8	129	137	0.27							
Crude & Fuel Oil														2025	2025	3.78							
Other Mine Products																							
FORESTS (Total)																							
Lumber		3546	3546	19.11	45	4285	4330	11.89	1320	5650	6972	15.95	16,466	509	16,975	31.72	23,770	1011	24,781	39.98	40,569	787	41,356
Wood (Fuel)									976		976	2.23											
Sash, Doors, Blinds/Millwork						17	17	0.00	7	80	87	0.20	38	41	79	0.14	12	74	86	0.13	181	17	198
Wood & Mill Refuse																	1510		1510	2.43			
Cord Wood & Poles													5360	487	5847	10.92							
Other Forest Products																							
MANUFACTURERS (Total)																							
Petroleum & Other Oils		428	428	2.35		599	599	1.64	2	469	471	1.07	70		70	0.13	31	7103	7134	11.46	82	14,076	14,158
Sugar		173	173	0.94		397	397	1.09	3	379	400	0.91	4	321	325	0.60	1	367	368	0.59	1	427	428
High Explosive/Naval Stores		223	223	1.21		414	414	1.13	69	447	516	1.18	33	382	415	0.77							
Iron Pipe		327	327	1.77		745	745	2.05	17	625	642	1.47											
Iron Pig & Bloom													19	684	703	1.31	102	666	768	1.23	103	136	239
Iron & Steel Rails																							
Iron Scrap									112		112	0.25											
Machinery & Other Castings		845	845	4.56		1310	1310	3.60	383	1711	2094	4.80	256	1104	1306	2.53	183	1256	1439	2.32	273	761	1034
Bar & Sheet Iron																							
Cement, Brick & Lime		259	259	1.40		1043	1043	2.86	105	908	1013	2.32	24	384	406	0.76	91	850	941	1.49	248	2020	2268
Wines, Liquors & Beers		597	597	3.23		1157	1157	3.18	28	1363	1391	3.18	22	1226	1248	2.32	25	1449	1474	2.37	33	1629	1662
Household Goods & Furniture		212	212	1.15		274	274	0.08	164	172	336	0.77	184	114	298	0.35	169	101	270	0.43	319	112	431
Ice		119	119	0.65	86	475	561	1.54	204	535	739	1.69	12	687	699	1.31							
Other Manufacturers																							
MERCHANDISE		3822	3822	20.66	985	5490	6475	17.79	328	6544	7372	16.87	421	6342	6763	12.60	1293	7316	8609	13.36	855	8756	9611
LCL GOODS NOT ABOVE																							
MECHANDISE - ALL LCL FREIGHT																							
													540	102	642	1.21					1943	2854	4797
MISCELLANEOUS COMMODITIES/OTHER																							
EMPTY CARRIERS RETURNED	246		246	1.13	662		662	1.82	663	179	842	1.95											
TOTAL TONNAGE	4568	13932	18500	100.00	10135	26310	36445	100.00	18299	25411	43,710	100.00	35,129	18,373	53,502	100.00	36,029	26013	62,042	100.00	60,478	36,583	97,063

*ICC - Interstate Commerce Commision
*CRRC - California Rail Road Commision
*O - Originating
*R - Received from other lines
*T - Total for item
*P - Percent of toal freight for year

1903	ICC	Report	June	1904	ICC	Report	June	1905	ICC	Report	June	1906	ICC	Report	June	1907	CRRC	Report	June	1908	ICC	Report	June	1909	ICC	Report
P	O	R	T	P	O	R	T	P	O	R	T	P	O	R	T	P	O	R	T	P	O	R	T	P	O	R
3.03	2118	144	2262	2.43	2709	338	3097	3.38	1820	331	2153	1.84	6414	4372	10,786	8.54					6245	2447	8692	7.80	7121	3045
1.87	963	570	1533	1.65	318	542	850	0.93	260	808	1068	0.92	1664	108	1772	1.40	626	151	777	0.73	763	143	906	0.81	1730	357
3.88	2654	1504	4158	4.47	2673	1414	4087	4.46	1940	1279	3019	2.58	497	1344	1841	1.46	774	825	1599	1.49	953	409	1362	1.22	829	485
0.68	1541	69	1610	1.73	887		887	0.97	232	22	254	0.21	2252	1632	3884	3.08	2689	2192	4881	4.57	3292	521	3813	3.42	2692	556
1.67	57	1526	1583	1.70	38	1423	1461	1.59	149	1316	1463	1.26	1885	315	2200	1.74	2539	2082	4621	4.32	1172	900	1872	1.68	1657	921
													116	973	1089	0.86	88	656	744	0.70	65	674	739	0.67	213	756
	109	58	167	0.18	30	41	71	0.08	52	55	107	0.09	307	109	416	0.32					134	25	159	0.14	129	143
0.15					221	2	223	0.24	132		132	0.11	16	20	36	0.02	23	65	88	0.08	2	25	27	0.02	12	17
													128	89	217	0.17	47		47	0.04						
0.02	31		31	0.03																	30		30	0.03		117
0.13	175		175	0.19					5		5	0.00	12		12	0.01	2		2	0.00	8		8	0.01	8	8
									193	1	194	0.17	151		151	0.12	96		96	0.09	94		94	0.08	109	1
													10,151	13,478	23,629	18.72					16,360	11,690	28,050	25.16	20,005	11,890
1.02	12	906	918	0.99	8	771	779	0.85	11	740	751	0.64		945	965	0.77		634	634	0.60		406	406	0.36	18	433
0.20		120	120	0.13		130	130	0.15		72	72	0.06		20	20	0.01									1	122
8.02	9484		9484	10.20	11089		11089	12.12	10,958		10,958	9.38	8984		8984	7.12	9762		9762	9.14	13,862		13,862	12.44	16,701	
0.84	1401		1401	1.50	2522	11	2533	2.76	2786	10,321	13,107	11.21	1167	26	1193	0.94	2139		2139	2.00	2498		2498	2.24	3285	49
	138	15780	15918	17.12		12416	12416	13.58	201	10,814	11,015	9.42		12,467	12,467	9.88		10,716	10,716	10.03		11,284	11,284	10.12		11,286
42.61	32050	1288	33338	35.85	33834	1352	35186	38.46	35,949	356	36,305	31.04	45,664	955	46,619	36.93					43,413	625	44,038	39.51	53,105	643
													44,331	955	45,286	35.87	39,279	659	39,938	37.38	33,289	590	33,879	30.39	40,778	341
0.20	949	5	954	102																						
									390		390	0.33					555		555	0.52						
													1333		1333	1.06					10,124	35	10,159	9.12	12,327	302
													12,559	8852	21,411	16.96					8336	6227	14,563	13.07	7926	8389
14.59	49	644	693	0.75	42	664	706	0.79	40	526	566	0.49	13	439	452	0.36		426	426	0.40		614	614	0.55	20	771
0.44	1	405	406	0.44	113	392	505	0.55		342	342	0.30		245	245	0.19		165	165	0.15		123	123	0.11		369
0.25	60	692	752	0.81	166	80	246	0.26	40	165	205	0.18	143	1134	1277	1.01	85	138	223	0.21	426	1107	1533	1.38	64	441
														722	722	0.57									23	414
1.07	261	934	1195	1.28	200	1480	1680	1.83	286	1148	1434	1.23	584	1734	2318	1.84	472	3525	3997	3.74	374	903	1277	1.15	371	820
									164	874	1038	0.90														89
2.34	107	725	832	0.90	63	1268	1331	1.46	2007	2138	4145	3.55	11,614	1983	13,597	10.77	9888	905	10,793	10.10	7308	1564	8872	7.96	6744	1611
1.71	75	1827	1902	2.05	18	1832	1850	2.04	42	1799	1841	1.58	7	1799	1806	1.43	13	1504	1517	1.42	38	1420	1458	1.31	24	1792
0.44	280	149	429	.047	113	114	227	0.23	272	113	385	0.32	198	58	256	0.20	100	27	127	0.12	100	46	146	0.13	143	115
																	6	506	512	0.48	90	450	540	0.48	534	1967
9.90	1184	7660	8844	9.51	2775	7015	9790	10.71	612	22,338	22,950	19.63	2460	18,450	20,865	16.35	1508	8283	9791	9.16	2490	9050	11,540	10.35	2215	4618
4.94	1691	2588	4279	4.66	126	2219	2345	2.56	985	2004	2989	2.56	1900	615	2515	2.00	2326	373	2699	2.53	3419	1008	4427	3.97	1010	2753
100.00	55,390	37,594	92,984	100.00	57,995	33,494	91,480	100.00	59,326	57,562	116,888	100.00	79,455	46,786	126,241	100.00	73,017	33,832	106,849	100.00	80,397	31,072	111,469	100.00	91,511	31,481

Appendix A

SIERRA RAILWAY FREIGHT TRAFFIC

June	1910	ICC	Report	June	1911	ICC	Report	June	1912	CRRC	Report	June	1913	ICC	Report	June	1914	ICC	Report	June	1915	ICC	Report	June	1916	ICC	Report	June	1917	ICC	Report	June	1918	ICC	Report	June	1919
T	P	O	R	T	P	O	R	T	P	O	R	T	P	O	R	T	P	O	R	T	P	O	R	T	P	O	R	T	P	O	R	T	P	O	R	T	P
10,166	8.27	6921	2148	9069	7.01	5645	2486	8131	5.96	4733	2409	7142	5.17	5250	2471	7721	6.40	5175	1496	6671	5.45	6180	1775	7955	4.64	6175	1425	7600	3.91	3898	673	4571	3.24	5175	863	6038	2.6
2087	1.60	2681	53	2734	2.12	3165	249	3414	2.51	1416	119	1535	1.12	1930	154	2084	1.73	1900	46	1946	1.59	729	73	802	0.47	2771	15	2786	1.44	2212	30	2242	1.59	2626		2626	1.1
1254	1.05	1083	399	1482	1.14	972	557	1529	1.12	841	241	1082	0.78	946	550	1596	1.24	740	234	978	0.80	298	211	509	0.30		183	183	0.09	93	30	123	0.09	189	53	242	0.1
3248	2.64	2661	150	2811	2.17	661	172	833	0.61	1919	125	2044	1.48	1616	52	1668	1.38	1397		1397	1.14	2888	52	2940	1.71	1953	50	2003	1.03	556	16	572	0.41	954	147	1101	0.5
2578	2.10	280	388	668	0.52	546	155	701	0.51	329	654	983	0.71	369	438	807	0.67	750	813	1563	1.28	1953	1002	2955	1.72	1319	837	2156	1.11	882	464	1346	0.95	799	470	1269	0.6
969	0.79	216	1158	1374	1.06	301	1353	1654	1.21	228	1270	1498	1.08	389	1277	1666	1.38	384	403	787	0.64	312	437	749	0.44	132	340	472	0.24	155	133	288	0.20	607	193	800	0.3
272	0.23	172	308	480	0.37	169	417	586	0.43	186	375	561	0.40	444	424	868	0.72	211	102	313	0.26	1370	248	1618	0.94	1685	257	1942	1.00	1502	185	1687	1.20	1912	92	2004	0.9
29	0.03	13	3	16	0.01	43	48	91	0.06	27	97	124	0.09	286	104	390	0.32	211	66	277	0.23	1370	248	1618	0.94	1685	257	1942	1.00	1502	185	1687	1.20	1912	92	2004	0.9
										9	3	12	0.01																								
117	0.10	8	279	287	0.22		369	369	0.27	7	262	269	0.19	9	320	329	0.27		36	36	0.03																
16	0.01	2		2	0.01	5		5	0.01	4	2	6	0.01	7		7	0.01																				
110	0.09	149	26	175	0.13	121		121	0.09	139	11	150	0.10	142		142	0.12																				
31,895	25.93	19,016	13,061	32,077	24.80	28,154	14,605	42,759	31.31	21,005	11,243	32,248	23.36	18,824	9296	28,120	23.34	17,279	8477	25,756	21.05	20,175	11,027	31,202	18.18	16,436	14,478	30,914	15.91	16,788	10,714	27,502	19.49	100,190	10,915	111,105	48.2
																							285	285	0.16		301	301	0.15		241	241	0.17		291	291	0.1
451	0.36	46	564	610	0.47		592	592	0.43	71	414	485	0.35		685	685	0.57		441	441	0.36		114	114	0.06		120	120	0.06		126	126	0.09		192	182	0.1
123	0.10		124	124	0.10		156	156	0.11	1	110	111	0.08		109	109	0.09		54	54	0.04												10,951	7.76	87,828		87,828	38.1
16,701	13.58	14,948		14,948	11.56	22,629		22,629	16.57	13,158		13,158	9.53	12,332		12,332	10.24	11,071		11,071	9.05	11,955		11,955	6.97	7321		7321	3.77	10,951		6135	4.35	12,242	637	12,879	5.6
3334	2.72	4022	33	4055	3.13	5525	964	6489	4.75	7769	551	8320	6.03	6492	202	6784	5.63	6208	632	6840	5.59	8220	172	8392	4.90	9075	340	9415	4.85	5837	298							
							12,893	12,893	9.45	6	10,168	10,174	7.37		8210	8210	6.81		7350	7350	6.01		10,456	10,456	6.09	40	13,717	13,757	7.08		10,049	10,049	7.12	120	9795	9915	4.3
11,286	9.17		12,340	12,340	9.54																																
53,748	43.70	59,862	1608	61,470	47.53	53,203	1206	54,409	39.85	60,894	2093	62,987	45.63	53,679	2438	56,117	46.57	59,656	1379	61,035	49.88	66,699	6514	73,213	42.67	100,940	11,978	112,918	58.14	68,975	1780	70,755	50.16	77,715	1174	78,889	34.2
41,119	33.44	43,508	1130	44,638	34.51	46,702	905	47,607	34.87	52,605	1724	54,329	39.35	43,675	2208	45,883	38.08	33,123	1141	34,264	28.00	40,485	3260	43,745	25.50	65,366	5216	70,582	36.34	55,803	1615	57,418	40.70	74,113	1152	75,265	32.6
12,629	10.26	16,354	478	16,832	13.02	6501	301	6802	4.98	8289	369	8658	6.28	10,004	230	10,234	8.49	26,533	238	26,771	21.88	26,214	3254	29,468	17.17	35,574	6762	42,336	21.80	13,172	165	13,339	9.46	3602	22	3624	1.6
16,315	13.26	9485	10,412	19,897	15.38	12,833	12,727	25,560	18.72	16,908	12,736	29,644	21.46	9749	12,263	22,012	18.28	6739	3469	10,208	8.34	11,073	21,412	32,485	18.93	13,784	7850	21,634	11.14	9687	6565	16,252	11.52	10,642	4371	15,013	6.5
794	0.65	68	927	995	0.77	123	1240	1363	1.00	163	1251	1414	1.02	71	1433	1504	1.25		758	758	0.62		6107	6107	3.55		1527	1527	0.78		1402	1402	1.00		1970	1970	0.9
369	0.30		543	543	0.42		553	553	0.41	26	543	569	0.41		574	574	0.48																				
505	0.42		143	143	0.11		60	60	0.04	3	88	91	0.07		261	261	0.22																710	0.50		588	588	0.3
437	0.35	295	250	545	0.42		189	189	0.14	3	761	764	0.55	74	402	476	0.40	76	103	179	0.15	254	9970	10,224	5.96	2444	1400	3844	1.98	647	63	1684	1.19	380	151	531	0.2
1191	0.96	463	1518	1981	1.53	543	1307	1850	1.35	471	1565	2036	1.48	254	1048	1302	1.08	104	252	356	0.29	579	1341	1920	1.12	990	775	1765	0.91	1323	361						
89	0.08	6	143	149	0.12		516	516	0.38	41	364	405	0.29	56	327	383	0.32																				
8355	6.80	7893	1587	9480	7.33	8369	2892	11,261	8.25	10,902	2713	13,615	9.86	5726	2458	8184	6.79	6549	1222	7771	6.35	10,200	2147	12,347	7.20	10,350	2268	12,618	6.50	7420	3491	10,911	7.74	8083	991	9074	3.9
																			1122	1122	0.92		1800	1800	1.05		1749	1749	0.90		1140	1140	0.81		358	358	0.1
1816	1.46	34	2229	2263	1.74	96	2299	2395	1.75	100	1883	1983	1.43	97	2104	2201	1.83														47	0.03	20		20	-
258	0.21	239	177	416	0.32	223	322	545	0.40	220	419	639	0.46	212	439	651	0.54	10	12	22	0.01	40	47	87	0.05		131	131	0.07	37	10					
2501	2.03	487	2895	3382	2.62	3479	3349	6828	5.00	4979	3149	8128	5.89	3259	3207	6476	5.37													260	98	358	0.25	2159	313	2472	1.1
6833	5.55	2135	2775	4910	3.80	951	1766	2717	1.99	1108	2468	3576	2.59	1058	2737	3795	3.15																				
																		4333	10,866	15,199	12.42	5705	13,720	19,425	11.32	5783	10,479	16,262	8.37	5239	8312	13,551	9.61	4164	8798	12,962	5.6
3763	3.06	190	1253	1443	1.11	1145	1230	2375	1.74	435	1492	1927	1.39	894	1064	1858	1.54	1378	1806	3184	2.60	1854	3847	5701	3.32	961	2011	2972	1.53	5346	1397	6743	4.78	2158	2415	4573	2.0
122,992	100.00	97,781	31,565	129,346	100.00	102,100	34,437	136,537	100.00	105,269	32,816	138,085	100.00	89,898	30,593	120,491	100.00	94,771	27,595	122,366	100.00	113,056	58,543	171,599	100.00	145,764	48,478	194,242	100.00	111,435	29,626	141,061	100.00	201,956	28,628	230,584	100.0

Appendix B

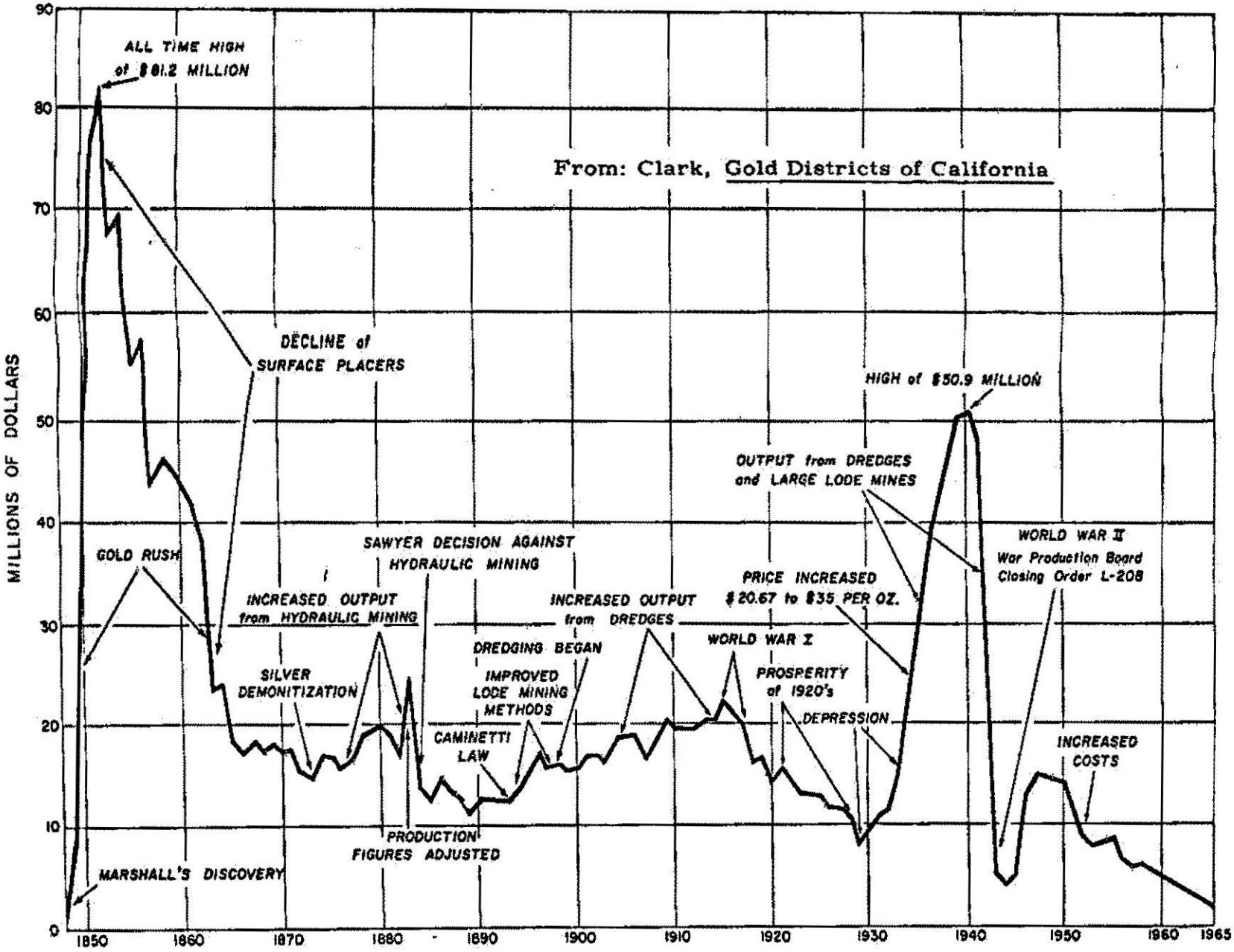
SIERRA RAILWAY ORIGINATING FREIGHT: COMMODITIES BY PERCENTAGES

Based on: Sierra Railway Annual Reports to the Interstate Commerce Commission and the California Railroad Commission (see Appendix 1).

Year	Agriculture & Animals	Ores	Stone & Lime	Forest Products
1898	52.5	47.5	0	0
1899	47.2	41.1	0	0.5
1900	42.1	31.3	3.2	13.1
1901	18.9	13.7	0.7	62.2
1902	19.0	9.1	0.4	66.5
1903	12.0	12.8	1.8	67.4
1904	13.8	17.1	2.7	59.6
1905	11.9	19.1	4.5	58.3
1906	7.7	18.5	8.1	61.3
1907	8.5	11.3	16.1	57.5
1908	9.4	13.4	16.5	54.6
1909	7.9	17.2	12.2	54.0
1910	7.9	18.3	11.0	58.0
1911	7.3	15.3	12.2	61.2
1912	5.7	22.2	13.6	52.1
1913	4.7	12.5	17.7	57.8
1914	6.3	13.7	13.6	59.7
1915	5.7	11.7	13.5	62.9
1916	6.7	10.6	16.3	59.0
1917	5.4	5.0	13.3	69.2
1918	4.8	9.8	11.9	61.9
1919	3.5	43.5*	10.1	38.5
1920	3.9	27.4*	16.1	46.8
1921	2.9	0.4	63.2#	29.1
1922	0.9	0.1	81.4#	15.9

* Ore shipments for these years include the temporary hauling of unprocessed ore from the Carson Hill mines to the Melones mill while an ore chute was being dug to connect the two mines.

Stone shipments for these years include aggregate shipped to the Don Pedro Dam from Atlas on the Sierra.



Gold Production in California, 1848–1965.

Appendix D

GOLD PRODUCTION OF TUOLUMNE and NEARBY COUNTIES

Based on: California State Minerologist Reports of 1925, 1927 and 1928.

Year	Tuolumne	Mariposa	Calaveras	Amador
1890	1,500,629	124,265	618,821	1,459,952
1891	1,384,950	84,414	738,883	1,395,962
1892	1,092,549	81,011	794,531	1,210,383
1893	354,734	164,116	1,669,192	1,505,973
1894	547,448	153,708	2,119,365#	1,331,916
1895	666,754	216,622	1,717,916	1,391,929
1896	1,070,141	335,637	1,546,398	1,523,351
1897	1,809,572#	451,427	1,439,861	1,324,472
1898	1,734,953	336,418	1,019,023	1,806,363
1899	1,635,769	562,829	1,265,564	1,544,868
1900	1,596,891	157,663	1,649,129	1,373,788
1901	1,670,368	504,928	2,024,685	1,823,827
1902	1,791,829	631,478#	2,072,939	1,629,151
1903	1,732,572	512,355	1,904,125	1,609,744
1904	1,563,907	429,771	1,789,184	2,060,574
1905	1,291,726	386,380	1,836,816	2,445,815
1906	1,039,675	366,394	1,644,234	2,260,373
1907	806,875	405,498	1,097,974	2,116,182
1908	798,752	439,862	1,378,511	1,876,175
1909	925,703	396,465	1,440,511	2,298,785
1910	615,626	317,580	1,147,705	2,646,246
1911	1,093,484	172,532	1,112,315	2,832,395
1912	1,113,291	160,541	962,145	2,796,194
1913	974,409	171,034	1,175,208	2,901,898
1914	940,793	131,458	1,336,875	3,082,002
1915	1,058,103	385,577	1,391,134	3,894,125#
1916	868,237	401,718	1,356,120	3,660,550
1917	321,085	313,296	1,471,442	3,664,164
1918	274,328	337,682	871,263	3,249,385
1919	471,021	253,392	1,550,574	2,920,492
1920	254,569	261,830	1,439,745	1,788,793
1921	96,026	331,295	1,495,758	2,167,443
1922	222,366	218,571	1,413,465	2,241,100
1923	261,936	141,883	1,205,784	1,734,133
1924	255,994	182,099	*	2,706,508
1925	155,592	192,810	*	2,338,101
1926	119,873	182,313	*	2,167,275

Peak production year.

* Information not available.

Appendix E

SIERRA NEVADA LUMBER MILLS IN 1931

Listing company, location and capacity in thousands of board-feet.

(Only mills above 100,000 feet capacity listed.)

Based on: Abbey's Register, 9th edition, 1931 (The Industrial Service Co., Portland)

California Door Co., Diamond Springs, 160.

Clover Valley Lumber Co., Loyalton, 150.

Davies-Johnson Lumber Co., CalPine, 100.

Diamond Match Co., Stirling City, 170.

Feather River Lumber Co., Delleker, 110.

Feather River Pine Mills, Oroville, 250.

Fruit Growers Supply, Susanville, 350.

Hobart Estate Co., Hobart Mills, 175.

Lassen Lumber & Box Co., Susanville, 125.

Madera Sugar Pine Co., Madera, 165.

Michigan-California Lumber Co., Camino, 165.

Pickering Lumber Co. (Standard Lumber Co.), Standard, 150.

Pickering Lumber Co. (West Side Lumber Co.), Tuolumne, 180.

Red River Lumber Co., Westwood, 800.

Sugar Pine Lumber Co., Pinedale, 500.

Swayne Lumber Co., Oroville, 175.

Yosemite Lumber Co., Merced Falls, 175.

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Manuscript and photographic material was also utilized from the following institutions and individuals: ALCO Historic Photos, Allen County Historical Society, California Historical Society, DeGolyer Foundation, Deleware Department of State, Smithsonian Institution, Stanford University Special Collections, Railway & Locomotive Historical Society, James E. Boynton, H.L. Broadbelt, Ron Core, Crocker family private records, Stephen E. Drew, Robert Dockery, Mallory Hope Ferrell, Charles Givens, Richard Lucas, Rick Mugele, Doug Richter, Al Rose, Richard Rosenquist, Russ Simpson, Ted Wurm, and the author's personal collection.